

Phase II: Detailed Feasibility

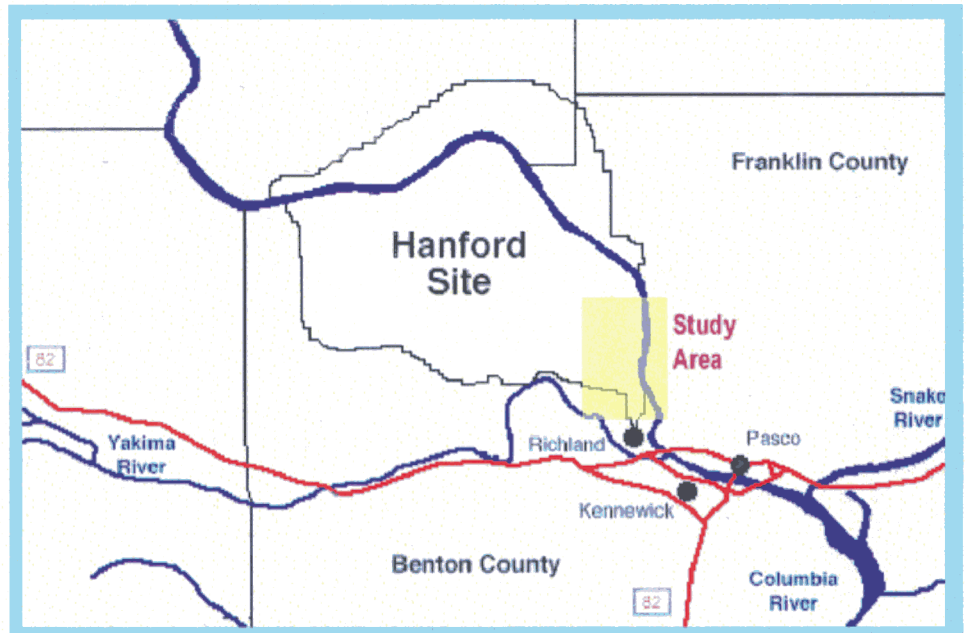
November 1999

Prepared by



And Associated Firms

State of Washington/Port of Benton Hanford Investment Study



For



Washington State
Department of
Transportation



Port of Benton



Legislative
Transportation
Committee

**STATE OF WASHINGTON
PORT OF BENTON**

HANFORD INVESTMENT STUDY

This Phase Report is one of three produced during the study.

Observations, evaluations and interim determinations of each Phase, as documented in the reports, reflect the status of the study at that time. The completed study findings and conclusions are presented in the *Final Report*.

STATE OF WASHINGTON
PORT OF BENTON
HANFORD INVESTMENT STUDY

PHASE II: DETAILED FEASIBILITY

NOVEMBER 1999

Prepared by:
HDR Engineering, Inc.
and associated firms

Prepared for:
Washington State Legislative Transportation Committee
Washington State Department of Transportation
Port of Benton

PHASE II: DETAILED FEASIBILITY REPORT

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INTRODUCTION

The purpose of the Phase II: Detailed Feasibility Report is to provide findings of the Hanford Investment Study that resulted from screening the development candidates from Phase I. Phase I identified eight “industrial development” and nine “business of transportation” categories that have potential for meeting the development objectives that were the focus of this phase. As the project continued, findings and evaluations presented in this document were continuously refined, and may not be indicative of the conclusions reached at the completion of the study. However, this report was incorporated into a final document *Final Report* at the conclusion of the entire study.

BACKGROUND

The state of Washington and the Port of Benton have authorized a feasibility study to evaluate development opportunities for land and facilities transferred from the Hanford Reservation. The study is examining whether state and Port investments in the site are warranted. Transportation, industrial, and other economic development opportunities are being evaluated to determine if statewide transportation and economic needs will be met. The study is a joint effort of the Legislative Transportation Committee, Washington State Department of Transportation, Washington State Department of Community, Trade and Economic Development, and the Port of Benton.

This study was prompted by the Port of Benson’s successful bid to obtain 768 acres of administrative, supply, and maintenance facilities transferred from the Department of Energy to local public ownership. Included in the transfer were 16 of 124 miles of federal rail system that cross the Hanford Reservation. The remaining 108 miles of federal rail are being considered for future transfer, along with industrial development lands and facilities from the southeast corner of the reservation. The feasibility study was commissioned to address economic viability, public interest, and community support for future investments.

STUDY PROCESS

A substantial portion of the study is devoted to determining the probability of successfully developing and attracting business to the Hanford lands and facilities. Existing transportation networks and new strategic transportation opportunities, along with complementary development assets, are also a large part of the study. An important aspect of determining the project’s feasibility will be understanding the interaction between the transportation and development components. Statewide transportation implications, regional economic viability, and economic development opportunities specific to the Hanford area are common interests of the state and the Port that direct this study.

As development options are identified and progress through screenings and more detailed evaluations of feasibility, substantial amounts of development, infrastructure, and market information are being generated. This information will be used for judging market viability, returns on investment, and public benefit. This research is being used to evaluate options for

economic success. This information will also be used to construct a conceptual master plan near the end of the study. The master plan will take the form of a “road map” that sets an action plan for more detailed marketing, development, and site planning, if warranted.

The work is being undertaken in four phases, briefly described below. Details of the phases including a study schedule and flow chart are located in the Phase I –Preliminary Feasibility Interim Report.

Phase I – Preliminary Feasibility. This initial phase identified property assets and candidate opportunities, defined feasibility criteria and initially screened, rated, and ranked opportunities to determine which options and/or initiatives will be detailed in Phase II. This phase is documented in the Phase I Interim Report (HDR Engineering, Inc., August 1999).

Phase II – Detailed Feasibility. This phase evaluated economic development and business of transportation opportunities that were identified in Phase I. The focus is on the market viability of either solitary, or groups of industries and businesses.

Phase III – Coordinated Program Feasibility. Industries, economic development, and transportation initiatives found to be feasible in Phase II will be coordinated and evaluated as a total program.

Phase IV – Master Planning. This phase will use the development, infrastructure, and financial information produced in Phases I through III for preparing a conceptual level Master Plan to guide the nature and timing of the program.

PHASE II OBJECTIVES

The primary objectives of the Phase II study were to establish individual feasibility of candidate industrial development and business of transportation categories screened from Phase I evaluations and to determine the need to evaluate a coordinated program of development in Phase III of the study. In Phase II, a more detailed study was performed, including market trend analysis, development and public investment requirements, evaluation of potential for success, and the feasibility criteria summary and conclusions. Items within Phase II included:

- ◆ Refine category definitions and identify current business in those categories
- ◆ Interview representatives of the various business, both in the local area and throughout the United States
- ◆ Describe the siting and requirements for each candidate
- ◆ Prepare general growth projections based on market outlook
- ◆ Determine acreage and facility requirements for candidates
- ◆ Estimate public investment requirements by facility type
- ◆ Re-evaluate feasibility of selected target candidates
- ◆ Conclude individual candidate feasibility and recommend the need to evaluate a coordinated development program.

STAKEHOLDER ADVISORY COMMITTEE

The study scope envisions an outreach program to interested and potentially impacted private and public entities throughout each phase of the study. The function of the Stakeholder Advisory Committee is to provide a forum for the project's stakeholders; to keep the stakeholders apprised of the study's progress; to develop consensus on key issues and options; and to provide information and feedback to the study team and Oversight Panel.

The Committee was formed by contacting many organizations, and inviting representatives to participate in and provide feedback. The organizations that received invitations included all the designated Regional Transportation Planning Organizations (RTPOs); economic development organizations; regional area ports (as well as the Ports of Seattle and Tacoma); transportation and industry associations (including rail, manufacturing, warehousing, and distribution interests); trade associations; and public agencies, including local cities and counties.

The Phase II meetings of the Stakeholder Advisory Committee were held on September 8 and October 20, 1999. In September, the Committee reviewed and provided comments regarding the nine business of transportation alternatives and the eight industrial development alternatives. In October, the Committee received the study team's Phase II recommendations for these alternatives, including which alternatives would be feasible for Phase III consideration.

Members of the Committee have provided names for the study team for industry interviews. In addition, discussion among Committee members has provided a reality check for the study team regarding its methodology and the merits of each alternative. The Committee's participation surfaced concerns about low compatibility uses (particularly waste disposal). Further, Committee members who professed an interest in the business of transportation alternatives participated in a one-day focus group to advise the study team of the viability of business of transportation alternatives. Finally, Committee members have reinforced the importance maintaining the east-west rail route capacity and the state's interest in keeping options available for the future.

To date, the core group of stakeholder attendees has included representatives from the following organizations: City of Pasco, City of West Richland; City of Kennewick; Benton-Franklin Council of Governments; U.S. Department of Energy; Energy Northwest; Livingston Rebuild Center; TRIDEC; City of Richland; Benton PUD; Fluor Daniel Hanford; City of Connell; Port of Pasco; City of College Place; Port of Seattle; and the Pacific Northwest Waterways Association. The entire Stakeholder Advisory Committee is larger than this core group of attendees, and members who are unable to attend receive meeting materials and briefings following each Committee meeting.

SPECIAL SCREENING CRITERIA: “INLAND PORTS” AND “INTERMODAL CENTERS”

A special interest of the State of Washington surfaced during Phase I deliberations of the Oversight Panel concerning feasibility criteria. It was observed that numerous regions, sub-regions, and cities often aspired to become centers of commerce and growth based upon transportation assets. These visions for taking advantage of the intermodal movements of international and domestic commerce as a basis for economic development are commonly pursued by other locales nationwide. It appeared to the Oversight Panel that not all locales could actually become such centers of transportation and commerce even with aggressive development initiatives. But little had been developed for establishing criteria to identify “Inland Ports” or “Intermodal Centers,” as they are often described.

The study team was asked to research this issue and to produce criteria for screening and feasibility determinations as part of Phase II. Research was completed and Technical Memorandum No. 2 was prepared for general use of the state and for providing an additional basis for judging the business of transportation candidates during Phase II. It is included as Appendix II to this report.

Facility Survey and Evaluations

Staff from eight facilities generally described as inland ports or intermodal centers were interviewed regarding reasons and methods for development as well as past and current market drivers. The facilities (although a small percentage of the total industry) represent a diverse group in terms of location and level of services provided. A complete reading of the case studies in Appendix II will provide an understanding of the many situations and factors, often involving niche businesses, that cause these types of centers to progress. They also include examples of limited successes and at least one that could fail. A brief description of each case study is outlined below:

Greater Columbus Inland Port

This project was originally intended to be a centralized facility for receiving and distributing international containers for the population center surrounding Columbus, Ohio intermodally, rail to truck in lieu of receiving those containers by truck from the Chicago area. Although there is at least one publicly developed facility that provides air cargo shipping, the inland port is a marketing arm of the Greater Columbus Chamber of Commerce.

Alliance Park, Texas

This 10,000-acre facility on the outskirts of Fort Worth, Texas, is an excellent example of a long-range development of greenfields at a prime location for serving 4.5 million people within 40 miles and the eight-state surrounding area. It has become a rail-to-rail, rail-to-truck and air cargo intermodal center for the sunbelt area and has attracted spin-off regional and national distribution centers and many types of commercial development. Proximity to population has been a principal driver.

Burlington Northern Santa Fe (BNSF) Hauser Fueling Facility

This proposed development provides an example of a transportation service center and its potential for becoming an intermodal hub because of rail route geography and location relative to regional population centers and seaports.

Virginia Inland Port

This development has resulted from needs to meet competition from other facilities through intermodal transfer of international containers by rail to a location closer to the population centers ultimately served. Although the transportation scheme used may not produce direct operating financial returns, the return on investment for the public agency appears to have been met. Spin-off development has not been realized for the inland intermodal facility.

Port of Shelby, Montana

Niche cargoes were the basis for development of this port authority facility near a small town of 3,000 in rural Montana. Proximity of this location to the grain-producing areas of Canada and a clear demand for a transfer from truck to rail was developed during a Canadian Rail strike. The intermodal services continue to be used by the grain producers and railroad.

Bethlehem Commerce Center

Population center proximity and clear demand for intermodal exchange of domestic goods for rail-truck on the newly developing north-south routes of the CSX and Norfolk Southern railroads have allowed Bethlehem Steel to convert brownfields factory sites to a viable center of transportation. This Pennsylvania location is considered ideal for future international container cargoes to transfer intermodally from the Port of New York/New Jersey.

Neomodal Freight Terminal

This is an example of aggressive regional and state development momentum that has thus far shown little sign of the use envisioned. Although the location is close to population centers, the feasibility study did not find that the terminal's lack of direct access to a Class 1 railroad and availability of alternative intermodal facilities in the region would limit usage and threaten its viability. It additionally provides an example of extending a local business retention issue into an apparent opportunity well beyond the immediate needs of the community.

Agile Port

This is not a facility but rather a concept being evaluated by the Maritime Administration for handling the massive numbers of international import containers anticipated to potentially overwhelm some seaports in the next 20 years. The concept suggests that large inland intermodal facilities can relieve overtaxed waterfront facilities by moving containers by rail "pipeline" for rehandling inland for movement by rail further inland and to the seaport population center by truck. Its concepts certainly describe the possible ultimate "Intermodal Center" but its cost effectiveness, applicability for all seaports, timing of need, and siting locations are uncertainties.

These surveys were used to identify market drivers and requirements that have led to the development and sustainability of inland transfer and transport facilities. The service centers were driven by actual or perceived excellence of transportation networks available. Drivers included the following:

- ◆ Distribution demand
- ◆ Modal transfer requirements
- ◆ Competition pressures
- ◆ Population proximity
- ◆ Modal efficiencies
- ◆ Public funding availability
- ◆ Modal cost reductions
- ◆ Known or predicted demand for transportation, industrial or commercial facilities
- ◆ Site location
- ◆ Intermodal transfer requirements
- ◆ Route geography
- ◆ Site and facilities availability
- ◆ Modal services requirements
- ◆ Niche business

Staff at each of the interviewed facilities attributed success to combinations of the above market drivers. There were, however, similarities among the service centers. Common to all were the proximity to national or regional population centers, and intermodal transportation operations. The most successful ventures have experienced a clear demand for intermodal cargo transfers or other transportation services.

New Definitions

The uses of these centers are varied and, as seen in TEA-21 legislation, many uses are described as intermodal facilities. This fact, along with the diverse drivers of development that were found even for similar facilities, indicated a need to further define "Inland Port" or "Intermodal Center." These new categories are:

- ◆ Freight Transportation Services Center. A primary central service facility on the modal route intended to provide necessary en route services and other enhancements that improve the onward movement of cargoes on the same mode.
- ◆ Freight Intermodal Services Center. A principal transportation facility specifically located and designed to meet a need to change routes on the same mode or change modes of transportation; distribution is likely but not mandatory.
- ◆ Freight Intermodal Services and Commercial Center. A major complex located and designed to accommodate large volumes of intermodal and distribution services generally associated with major population centers; potentially a magnet for substantial industrial and commercial development attracted by the combination of consumers, producers, and transportation efficiencies.

Criteria Development

Additional screening criteria were then developed for these new categories. The preliminary criteria are defined as requirements that must be met in order for that business type to be a

viable option. In the preliminary category it is important to note that either all of the criteria have to be present or there must be an established demand for the service. The final feasibility criteria are used to estimate the probability that this business type will be successful. The more criteria that are met, the more likely the business candidate will be profitable. Again, as with the preliminary criteria, if a specialized niche opportunity is identified, this will supersede the need to meet other conditions.

Table 1. Applicable Screening and Feasibility Criteria

	Freight Transportation Services	Freight Intermodal Services	Freight Intermodal Services and Commercial
Preliminary Feasibility Screening Criteria			
Located immediately adjacent to one (or more) railroad Class 1 Intermodal Network Routes	X		
Served by one (or more) Class 1 Intermodal Network Routes		X	X
Site availability relative to railroad mainline	X	X	X
Adjacent to Major Interstate Highway routes		X	X
Located within close proximity to population or critical route geometry		X	
Located within close proximity to population			X
Identified specific need:			
Reduction of system costs	X	X	X
Improvement of system reliability	X	X	X
Reduction of system inventory	X	X	X
Meets industrial development criteria	X	X	X
All Of the above or established demand for facility	X	X	X
Final Feasibility Criteria			
Found to be preliminary feasible	X	X	X
A balanced combination of:			
Favorable site and facility location	X	X	X
Route geography opportunity	X	either / or	
Population proximity			X
Modal and/ or intermodal transfer requirements		X	X
Modal efficiencies and cost reductions	X	X	X
Competition Objectives	X	X	X
Opportunities for public funding	X	X	X
Niche business opportunities or known demand	X	X	X
High degree of certainty in:			
Reduction of system costs	X	X	X
Improvements of system reliability	X	X	X
Reduction of system inventory	X	X	X
Meeting applicable industrial development criteria	X	X	X
Meets the public benefit criteria	X	X	X

DETAILED FEASIBILITY FINDINGS

As in Phase I, this feasibility study includes a wide array of economic development opportunities that is being evaluated to determine industrial, commercial, and other economic development potentials. The state and the Port both have identified transportation as a primary interest. Therefore, the need to address transportation-specific values of the Hanford site has been facilitated by considering “business of transportation” separately from “industrial development” opportunities.

BUSINESS OF TRANSPORTATION

Nine candidates within the business of transportation were identified. These candidates were:

- ◆ Eastern Washington Export Consolidation and Shipment Center
- ◆ Domestic Automobile Distribution Center
- ◆ Rail Equipment Repair and Rehabilitation Center
- ◆ Rail Equipment/Empty Container Center
- ◆ Rail Servicing Center
- ◆ Rail Servicing Center, National Strategic Trade Corridor
- ◆ Transportation Equipment Control and Tracking Center
- ◆ East-West Rail Route Improvements
- ◆ Inland Operational Support of Washington Seaports

Early in the Phase II study, two of these candidates, East-West Rail Route Improvements and Inland Operational Support of Washington Seaports, were determined to have strategic statewide implications. Due to the regional and potential statewide implications of these candidates and remaining questions of primary interest to study sponsors, the evaluation was continued into Phase III. Progress on these two issues during Phase II is discussed in the following section, “Strategic Transportation Issues.” This left seven businesses of transportation opportunities for detailed feasibility screening.

An essential element of the Phase II evaluation process for the business of transportation comprised two simultaneous industry input and advice stages. The Stakeholder Advisory Committee and a Focus Group participated in discussions concerning the candidate opportunities. The meeting summaries are located in Appendix I and Appendix IV, Attachment 1.

The majority of the evaluation, however, relied principally on forecasted demand for services, which is the bottom line of transportation business feasibility. Each candidate was tested against the feasibility criteria established in Phase I and a summary evaluation was completed. The specific categories addressed were market demand and analysis, development and public investment requirements, evaluation of potential for success, feasibility criteria summary, and feasibility conclusion. The detailed feasibility analysis and

conclusions can be found in Appendix IV with supporting attachments. A summary of the discussion and feasibility conclusion for each candidate is summarized below.

Eastern Washington Export Consolidation and Shipment Center

This business is defined as a centralized location for receiving and intermodal transfer of containerized agricultural products for rail movement to Ports of Seattle and Tacoma.

The study concluded that there is little basis for forecasting a significant demand for this type of transportation service over the 20-year planning horizon. The marketplace will control the modes of transport during that period and rail pricing, service levels, and capacity issues will continue to favor trucking and barging. Export competitiveness of these commodities does not appear to be adversely affected by the current situation. This transportation situation is not expected to change significantly for the future.

This candidate was determined to be not feasible based on the projected cost of consolidation and a lack of demand for service.

Domestic Automobile Distribution Center

This distribution center would be a centralized, consolidated regional domestic automobile center for mass receiving by rail, storage, component additions, staging and intermodal transfer to trucking for Pacific Northwest distribution network.

A market analysis concluded that the additional costs of \$84 per car and impacts to back haul opportunities (not priced) would dominate marketplace decisions for the 20-year planning horizon.

This candidate was determined to be not feasible due to the increase in cost of car handling combined with the lack of backhaul cargo that would likely increase this cost.

Rail Equipment Repair and Rehabilitation Center

This business is defined as a center that would provide cost-effective repair, rehabilitation, and overhaul of locomotives and rail cars and virtually unlimited storage and staging facility for railroad equipment undergoing those services.

The market analysis indicated that slow, steady growth of the railroad freight and passenger industry would continue to provide opportunities to expand the rail equipment maintenance business. However, the highly competitive marketplace will continue to be a challenge. Beyond the existing repair business, Livingston Rebuild Center has an opportunity to expand into manufacturing and fabrication of rail equipment.

This candidate was found to be feasible option for both the businesses of transportation and industrial development. This is due in part to the merging of rail equipment manufacturing and fabrication, an industrial operation, with the business of transportation component.

Rail Equipment/Empty Container Center

This business candidate would be an en route facility for storing, staging and dispatching railroad double stack rail cars and empty containers for the Ports of Seattle and Tacoma.

Currently, a shortage of double stack cars nationwide has negatively affected Pacific Northwest shipping with preference given to supplying southern California. Just-in-time or even late deliveries of cars is forecasted for the next several years with the result being less need for storage and staging of empty double stack cars. Seaport storage facilities are fully adequate for storing what have become just-in-time-inventories with sacrifice to service levels. Westside storage space at the seaports is planned to be increased, and westside railroad facilities are anticipated to be adequate for several years. As volumes grow and space becomes critical, it is anticipated that the preferred storage locations will remain west of the Hanford site.

This candidate was determined to be not feasible due to the lack of demand. Ports and railroads appear to have the capability to develop adequate storage facilities.

Rail Servicing Center and/or National Strategic Trade Corridor

These two candidates were combined for evaluation as they provide similar services and have similar requirements. A rail servicing center concept is an en route facility for providing rail operations, support services such as fueling, inspection, maintenance, repair, crew rest, crew changes, dispatch arrival/departure trackage, and temporary train storage and staging.

Service centers are usually railroad developed, controlled, and operated. Current demand for these types of services is fulfilled by facilities in Haver, Montana, and Ballard, Washington, for the BNSF and in Hinkel, Oregon, for Union Pacific Railroad. A key replacement facility for the BNSF Ballard and Haver facilities is already planned for Hauser, Idaho.

This candidate was determined to be not feasible due to a lack of demand. Essentially, this is candidate is driven by route geography, and is not subject to change without significant external factors.

Transportation Equipment Control and Tracking Center

This center would provide transportation equipment location and control services for a wide spectrum of transportation modes to include trucking, rail, air, barge, and ship.

Tracking systems are already used by the trucking, rail, and barging industries, among others. Although facilities already transferred to the Port can house tracking centers, this would be considered more of a space rental option. It was determined during the Phase II evaluation that this candidate related more to immediate recruiting efforts of the port for a given building and did not adapt to a need for inclusion in long-range planning.

INDUSTRIAL DEVELOPMENT

The Phase I industrial analysis evaluated more than 100 individual business ideas and identified eight categories of industry for further evaluation in Phase II. These eight categories are:

- ◆ Energy and Energy Systems
- ◆ Environmental Technology and Services
- ◆ Advanced Materials
- ◆ Information/Communication
- ◆ Warehouse/Distribution
- ◆ Miscellaneous Manufacturing
- ◆ Transportation Equipment Manufacturing
- ◆ Low Compatibility Uses

These uses were determined to be promising candidates for the Hanford lands in that the area met basic suitability requirements; they were preferable in terms of their economic impacts; and the area might enjoy some competitive advantages over other potential locations.

Feasibility of development within each of the eight target categories is based on an analysis of demand and the Hanford study area's competitive position. A comprehensive investigation of several key competitive factors, and presents projections of potential industrial development and requirements and supporting Attachments are located in Appendix III. Each category was analyzed against the following factors:

- ◆ Existing economic base and workforce factors
- ◆ Real estate market conditions
- ◆ Projections of future employment
- ◆ Projected land and facility requirements
- ◆ Public investment requirements

A summary of the industrial development feasibility analysis for each business type follows. A more detailed evaluation is located in Appendix III.

Energy and Energy Systems

This category includes research and development (R&D) production, distribution and a variety of services related to existing and emerging energy sources. Specific subcategories have been identified as energy R&D and testing, laboratory instruments and electric and other energy sources.

The analysis of energy and energy systems revealed that the required land area, labor, and quality of life is available and their cost to industry is acceptable. In addition, few raw materials are required and markets are accessible at reasonable transportation costs. The communications infrastructure will soon be available and other utilities are mostly in place for supporting this business type. In short, development of this industry will provide public

benefits in the form of jobs, economic activity, and tax revenues to state and local government. Public improvements and investments are reasonable given the existence of most of the required infrastructure in north Richland.

Environmental

The environmental category includes firms that provide environmental services such as hazardous and solid waste management, R&D, consulting and engineering, remediation, and environmental analysis. In addition, companies that manufacture equipment for the analysis of air, gas, soil and water are also included. Specific subcategories have been identified as: pollution control and prevention equipment, air monitoring analysis equipment, water supply systems, waste remediation (solid and liquid), and refuse and sanitation systems.

The analysis of the environmental category revealed that the required land area, labor force, and quality of life are available and their cost to industry is acceptable. However, rental facilities may not be available without public or private investment. There are few raw materials required and markets are accessible at reasonable transportation costs. The communications infrastructure will soon be available and other utilities are mostly in place for supporting this business type. In short, development of this industry will provide public benefits in the form of jobs, economic activity, and tax revenues to state and local government. Public improvements and investments are reasonable given that much of the required infrastructure is already in the ground.

Advanced Materials

The advanced materials category includes non-ferrous metals, plastics-based components, and metal treatment. Specific subcategories have been identified as specialty plastics, aluminum products, other non-ferrous metal products (titanium), composites, and coatings and treatment.

The evaluation of the advanced materials category found that the required land, labor forces, raw materials and utilities are available at acceptable cost. In addition, required markets are accessible at reasonable transportation cost. Development will provide public benefit in terms of jobs, gross economic activity, and taxes to state and local governments. Required public investment was estimated to be moderate and the largest component would be rail improvements. Funding the public investment will be considered in Phase III.

Information and Communications

The information and communications subcategory includes a variety of manufacturing and services sectors that provide for the creation, storage, and distribution of information. Specific subcategories have been identified as computer and communications equipment, electronics components, communication services and systems, and data systems and information retrieval.

The analysis of the information and communications category concluded that the required labor and utilities are available. The necessary land area or facilities can be available for sale or lease at affordable rates and markets are accessible at reasonable transportation or transmission costs. The quality of life was found suitable for the workforce, with possible

exception in case of general software development. Development will provide public benefits in terms of jobs, gross economic activity, and taxes to state and local government. Public investment was estimated as minimal, and could be recovered through direct revenue.

Wholesale Distribution

The wholesale distribution category includes regional and local distribution centers within the surrounding trade area and mail order service activities. Specific subcategories have been identified as regional distribution centers to retailers, local warehousing services, agricultural distribution, and mail order and direct sales.

The results of this industrial category analysis found that the required land, labor, and quality of life are available and their cost to industry is acceptable. In addition, the necessary communications infrastructure and other standard utilities are available. There would be no raw materials required for this industry. Development of this industry will provide public benefits in the form of jobs, economic activity and tax revenues to state and local government. The public improvements and investments are reasonable given the existence of most of the required infrastructure in north Richland.

Miscellaneous Manufacturing

The miscellaneous manufacturing category contains a variety of manufacturing sectors, with the ability to relocate or expand from the central Puget Sound or other metropolitan areas in the region. Many manufacturers are considering alternative locations because of limited land availability around their existing sites. In addition, land is expensive in major urban areas, and either labor rates, or the cost of living are high for their employees. It is within the State of Washington's interest that these businesses relocate or expand elsewhere in the state rather than relocate outside the state. The sectors that are the most promising candidates are the ones with the greatest land requirements or are most sensitive to labor costs. The following specific subcategories have been identified as mobile homes and/or building components, publishing and printing, structural metal equipment, conveying equipment, gears and components, and sporting equipment.

The analysis of the miscellaneous category concluded that the required land area or facilities could be available for sale at affordable rates. However, the necessary rental facilities may not be available without public or private investment. Utilities, labor, and quality of life are available at a reasonable cost. In addition, the markets are accessible at reasonable transportation or data transmission costs. There are also few raw materials needed for this category. Development will provide public benefits in terms of jobs, gross economic activity, and taxes to state and local government. The public investment would be minimal, and can be recovered through direct revenue.

Transportation Equipment Manufacturing

The transportation equipment industry category is limited to only the manufacturing of transportation equipment. Specific subcategories have been identified as railroad equipment, truck and travel trailers, boat manufacturing, space vehicle parts and equipment and transportation equipment.

The evaluation of this category found that the required land, labor forces, and utilities are available at acceptable cost. In addition, required markets are accessible at reasonable transportation cost. Development will provide public benefit in terms of jobs, gross economic activity, and taxes to state and local governments. There are also few raw materials needed for this business category. Required public investment was estimated to be moderate and the largest component would be rail and standard utility improvements.

Low Compatibility Uses

Low compatibility uses include a broad array of uses that are perceived to be incompatible with many traditional uses. These uses share a requirement for large sites to provide adequate visual and spatial buffers from surrounding uses. Five specific subcategories of manufacturing were identified: sand and gravel, fertilizers and pesticides, explosives, arms and ammunition, and landfill. While mere storage of solid waste in a landfill elicited objections from some members of the Stakeholders Advisory Committee, the idea of resource recovery was considered an acceptable use. Resource recovery is considered under the category of energy and energy services.

The analysis of low compatibility uses revealed that the required land and underlying resources are available, and at affordable royalty or lease rates. In addition, there are few raw materials needed, except in the case of sand and gravel. The essential labor and quality of life are available at acceptable costs. Utilities would be available in the form of onsite wells and septic systems. The business markets are accessible at a reasonable transportation cost, and rail is available for key businesses. Required public investment is minimal except in the case of a rail spur. Development will provide public benefits in terms of jobs, gross economic activity, and taxes to state and local government. The public investment is minimal except in the case of a rail spur.

PROGRESS REPORT: STRATEGIC TRANSPORTATION ISSUES

Integration of regional transportation strengths into development opportunities proved difficult in Phases I and II of the study. The reason for this difficulty is that the following questions had yet to be answered:

- Will transportation assets and growth drive future business development, or
- Will business growth take place, driven by other factors, as long as industrial transportation demands can be met?

The Phase II evaluation answered this question. This phase projected that industrial development will not be driven by transportation assets and found little, if any, evidence to support a significant business of transportation demand. Eight categories of industrial development were found feasible but none included a significant requirement for rail or highway.

However, as Phase II evaluation of the business of transportation progressed and the above realities began to emerge, it was found that two concepts: East-West Rail Improvements, and

Operational Support for Washington Seaports could not be adequately addressed merely as business opportunity developments. These issues are strategic in nature rather than being tied to a specific Hanford development program and need to be addressed broadly and over a planning horizon longer than 20 years. These two options and potential benefits are outlined below. A more detailed analysis can be found in the description of these candidates as business opportunities in the Phase I interim report and as strategic issues in Appendix IV.

EAST-WEST RAIL ROUTE IMPROVEMENTS

This business would provide additional rail capacity, shortened routes, relief to grade crossing issues, bypassing of rail congestion areas, improved and new access to regional centers and space for transportation servicing facilities.

Three specific long-term rail needs and benefits have been identified thus far in the evaluation of strategic issues, as follows:

- Reopening Ellensburg to Lind rail route
- Stampede tunnel improvements and use of a one-way loop system
- Reopening Ellensburg to west Beverly to northern terminus of Hanford Reservation Rail and North Richland Hanford Reservation Rail to Pasco Yard

Reopening Ellensburg to Lind Rail Route

This option would reopen approximately 100 miles of track from Lind to Ellensburg. This would create a mainline that would bypass Yakima and the Tri-Cities and provide a direct connection from Spokane to the Seattle metropolitan area without the southern swing of the current route through the Tri-Cities. Benefits are seen as:

- ◆ Increased capacity from Ellensburg to Spokane
- ◆ Decreased operating costs from Ellensburg to Spokane
- ◆ Reduced grade crossing impacts through Yakima Valley and the Tri-Cities

Stampede Tunnel Improvements and Use of a One-Way Loop System

The Stampede Tunnel improvements would accommodate double stack trains. Using a one-way loop system between Spokane and the Puget Sound, westbound over Stevens Pass and east bound over Stampede Pass, provides a potential capacity improvement for east-west movements. Benefits of this improvement include:

- ◆ Increased capacity statewide
- ◆ Decreased operating costs statewide
- ◆ Reduced grade crossing impacts through the Yakima Valley and the Tri-Cities

Reopening Ellensburg to West Beverly to Northern Terminus of Hanford Reservation Rail and North Richland Hanford Reservation Rail to Pasco Yard

This option would reopen the old line to only to west Beverly, as opposed to Lind. The old Milwaukee trackage along the Columbia River would then be reopened for approximately 30

miles from west Beverly southeast through the Hanford Reservation, connecting the existing Hanford Rail to the Tri-Cities from Stampede Pass and Ellensburg. . Connection to the Pasco yard would then be made from Hanford via a new Columbia River rail bridge in the vicinity of North Richland. Benefits for this improvement are estimated to reduce the grade crossing impacts through the Yakima Valley and the Tri-Cities.

Note that reopening part of the Ellensburg to Lind Route and connection to Reservation rail, the last option, is driven only by a potential need to relieve grade crossing impacts on the current route. This limited value is the result of several factors of railroad intermodal network systems:

- ◆ Access to through-intermodal trains is restricted to “nodes” that represent hubs on a hub and spoke system. Nodes are few and far between on the BNSF system with only six between Chicago and the coast of Washington. The Hanford site would have only indirect rail access to the node at Spokane even if the mainline were to traverse the Reservation.
- ◆ Switching access to a mainline is fully adequate for fairly high volumes seeking through-train service, as it is available for an off-hub area. Hanford sites will have switching access with or without the mainline traversing the Reservation.
- ◆ High rail demand has not been found for potential development, certainly not at a level that would gain the interest of the railroad in establishing a node for the Hanford area nor for the Tri-Cities in general. Mainline routing across the Reservation would not drive development.

However, evaluations of the East-West Rail improvements are still underway. Factors relating to this regional rail system that will be addressed include the following:

- ◆ Identification of additional areas of rail route needs with strategic implications related to south central Washington
- ◆ Establishment of planning-level, long range system demand
- ◆ Determination of railroad, state and/or regional interests
- ◆ Identification of planning-level costs, obstacles and timelines
- ◆ Evaluation of competing needs and interests
- ◆ Conclusion of long-range demand for rail and broad feasibility
- ◆ Determination of current and future actions needed

INLAND OPERATIONAL SUPPORT TO WASHINGTON SEAPORTS

This concept would provide storage, staging, and distribution facilities in direct support of Washington seaports of Seattle and Tacoma. The support center would have components of a Freight Intermodal Service Center operation.

Long-term needs of the two primary Washington seaports, Tacoma and Seattle, for possible inland operational support evolve around the following future challenges:

- ◆ Larger Ships/Higher Import Container Volumes. Forecasts through 2020 for the west coast indicate continuing growth of Asian import container volumes for intermodal rail movements to the entire U.S. through five primary and two secondary ports (Los Angeles, Long Beach, Oakland, Tacoma and Seattle and Portland, Vancouver, BC). Volumes are forecasted to grow by a factor of 2 or 3 depending upon the port's ability to maintain market share. At least some of the largest primary ports will have to accommodate container ships that are 2 to 2.5 times larger than today.
- ◆ Terminal Space Limitations. As a general premise, the ports that will be able to accommodate the largest future container ships and successfully move the mass of container volumes intermodally to inland destinations will require increases in their limited waterside terminal space. This will prove difficult.
- ◆ Terminal Rail Capacity Limitations. Similar to the general premise for terminal space, ports will need to increase their limited capacity to load and dispatch intermodal trains, which could prove difficult.
- ◆ Highway Capacity Limitations. A high percentage of import container volumes forecasted for Washington growth are destined for intermodal movements inland by rail to the midwest and east coast. However, overall increased volumes will also result in regional trucking increases and continue to challenge westside highway systems and passes over the Cascades.

The potential needs for long-range solutions have driven the Port of Benton's vision that an inland operation using Hanford assets could be a solution. To date, the study team and the special industry focus group have attempted to identify influential transportation issues over a 20-year planning horizon. A general observation regarding current and future trends in domestic container transport is that the largest ships and volumes will continue to favor southern California.

The Pacific Northwest will aspire to increasing its market share of intermodal import containers and will grow even at its current share. But there is no indication that the current favoring of southern California ports for the biggest ships and largest regional and intermodal volumes will change.

- ◆ Terminal space limitations may not materialize.

Based upon the biannual cargo forecast completed by the Washington Public Ports Association and WSDOT, the 20-year container growth forecast for the Puget Sound rises from approximately 2.8 million twenty equivalent units (teu's) this year to 5 million teu's in 2020. Potentially increasing productivity per acre of terminal space can be expected from improved container handling and storage systems and improved rail operations. This factor,

along with existing overcapacities of some terminals and some potential for new terminal sites, provides a good chance of meeting space demands for the 20-year period.

- ◆ Rail capacity limitations may be overcome.

Rail capacity issues are basically parallel for both ports, challenges of timely loading and clearing of containers from the primary shipping terminals and facilitating timely inland deliveries by rail. Improvements underway and planned at the ports such as additional near-dock rail storage and staging, special arrival and departure tracks, direct dispatch to mainlines and optimized and coordinated operating procedures all will play a role in overcoming potential future limitations.

- ◆ Inland support center facility siting and demand are yet to be determined.

The need for an inland supporting operation is primarily the product operation that focuses on the assumed future need to move massive amounts of import containers away from otherwise totally overwhelmed port terminals. The special industry focus group for this study concluded that an inland site would not be required for Tacoma and Seattle for at least the next 10 to 20 years, if ever. And if this support service was needed long term, central Washington would be too far inland.

PHASE II SUMMARY AND RECOMMENDATIONS

The Phase II evaluation found that industrial development will not be driven by transportation assets and found little, if any, evidence to support a significant business of transportation demand. Instead any transportation improvements will need to support industrial development or as part of a statewide transportation initiatives.

The industrial development group concluded that all eight business categories should progress to Phase III. The business of transportation group concluded that only one of the seven candidates evaluated in Phase II should progress to the Phase III study. This candidate is the Rail Equipment Repair and Rehabilitation Center. In addition to this candidate, the East-West Rail Route Improvements and Inland Support for the Washington Seaports will continue to be evaluated in Phase III, as these have regional implications and important questions are yet to be answered.

In Phases I and II of the Hanford Investment Study, potential candidates in industrial development and the business of transportation have been evaluated separately. In Phase III, the recommended options will be merged. A primary focus of Phase III will be to analyze the combined public investments and returns.

Appendix I Stakeholder Advisory Committee Meeting Summaries:
September 8, 1999
October 20, 1999

**State of Washington/Port of Benton
Hanford Investment Study
Stakeholder Advisory Committee Meeting #3
September 8, 1999
Meeting Summary**

Members Attending

Bob Alberts, City of Pasco	Mark Kushner, Benton-Franklin Council of Gov'ts
Nancy Aldrich, City of West Richland	Bill Martin, TRIDEC
Roy Cross, City of Kennewick	Dick McKinley, City of Walla Walla
Tom DiDomenico, Benton-Franklin Coun. of Gov'ts	Peter McMillin, Washington State DCTED*
Dave Evans, U.S. Department of Energy	Carol Moser, City of Richland
Howard Granger, Port of Seattle Inland NW Office	Jim Sanders, Benton PUD
John Gruber, South Central WSDOT Office	Jerry Schneider, Fluor Daniel Hanford
John Haakenson, LRC Richland	Stan Stave, City of West Richland
Alan Harger, Washington State DOT	Bob Stewart, U.S. Department of Energy
Roy Keck, Energy Northwest	Art Tackett, City of Connell
Charles Kilbury, City of Pasco	Jim Toomey, Port of Pasco
Roy Korkalo, LRC, Livingston, MT	Van Voorhies, City of College Place

(* = member of Project Oversight Panel)

Consulting Team

John Terpstra, HDR Engineering	Greg Easton, Property Counselors
Bonnie Berk, Berk & Associates	Kurt Reichelt, HDR Engineering
Dave Eacret, Real Estate Economics	Marty Wine, Berk & Associates

The meeting opened at 9:45 with introductions.

Phase I Results and Reporting

John Terpstra reported that at the last Oversight Panel meeting on August 12, the Panel approved the consulting team's recommendation to advance the study to Phase II. In addition, the Interim Draft Phase I report was completed on 8/26 and will be considered for acceptance at the September 8 afternoon meeting of the Oversight Panel. Copies can be made available to committee members on request, although the contents of the Phase I Report mirrors all the material covered to date with the Stakeholder Advisory Committee. Phase I results found nine "business of transportation" alternatives and eight industrial development alternatives preliminarily feasible. John briefly reviewed the final candidates with the group, listed below.

The purpose of today's meeting is to provide a progress report of Phase II activities and provide additional detail into the refinement of the industrial development and "business of transportation" alternatives. Final candidates advanced to Phase II include:

Industrial Development Categories

- Energy
- Environmental
- Advanced Materials
- Information/Communications
- Wholesale/Distribution
- Miscellaneous Manufacturing
- Transportation Equipment Manufacturing
- “Low Compatibility Uses”

Business of Transportation Alternatives

- Eastern Washington Export Consolidation and Shipping Center
- Rail Equipment/Empty Container Center
- Rail Servicing
- Domestic Auto Distribution Center
- Rail Equipment Repair and Rehabilitation Center
- Transportation Services via National Strategic Trade Corridor
- Equipment Control and Tracking Center
- East-West Rail Route Improvements
- Inland Operational Support of Washington Seaports.

Phase II Activities: Industrial Development Alternatives

Greg Easton and Dave Eacret provided a progress report on Phase II activities, the process for conducting a detailed feasibility analysis, and how the eight industrial development categories above would be further refined.

The team will conduct eight tasks in Phase II, and two are already underway. Greg and Dave plan to: refine the descriptions of industries; collect industry data; interview representative businesses; make market demand projections (including short-, medium-, and long term projections and ideas about a phased investment program); determine industry development requirements; analyze preliminary siting requirements; assess whether public investment is warranted, and what are potential costs; and develop industry financial analyses and pro formas. To date, the first two tasks have been completed.

The Committee offered Greg and Dave the following suggestions regarding their efforts. First, C. Moser suggested that we take advantage of the Energy Communities Alliance Meeting that would be held in Richland from September 13-15 to hear other community representatives’ and industries’ insights. J. Schneider asked about the scope of the interviews, and whether these would be limited to the Northwest. The team plans to interview nation-wide as budget will allow. The team is using the Pinpoint database, which can provide employment data by segment and SIC (standard industry classification) code.

Dave and Greg then explained each Phase II industry category in more detail to define the focused segment analysis and interviews they will conduct. Within the **Energy and Energy Systems** category, the team intends to look into the research, development and production of existing and emerging energy sources. Segments to be examined include: energy research and development and testing; process control/measurement systems; energy engineering services; laboratory analytical instruments; and electric and other combined energy services.

The **Environmental** category includes research, design, manufacturing and services for analysis and treatment of air, soil and water. Segments to be interviewed and analyzed include pollution control and prevention equipment; air monitoring analysis equipment; water supply systems; solid and liquid waste remediation; and refuse and sanitation systems.

The **Advanced Materials** category entails analysis of research and manufacturing of products using advanced materials, including a focus on the following segments: specialty

plastics; aluminum products; titanium (non-ferrous metals); and composites. Early research shows that about 160 firms of this type are in the Washington-Idaho-Oregon area.

The category of **Information/Communications** will involve a focus on electronic and communication equipment, systems and services. Segments to be studied include computer and communication equipment; electronic components; navigation and guidance systems; communication systems; communication services; and data systems and information retrieval. Early research shows that over 600 businesses of this type exist in the tri-state area.

Within the **Wholesale/Distribution** category, the team will examine the distribution of products supplied by others in manufacturing and other sectors. The intention is to examine the question of whether a regional distribution center, such as the one in Umatilla, would work in the Tri-Cities. Segments of the industry will include mail order and direct sales; regional distribution centers to retailers; local wholesale servicing; agricultural distribution; machinery and equipment distribution; and chemicals and allied products distribution. J. Toomey asked what the screening process was for identifying categories for further analysis. Greg reviewed the steps, which included evaluating transportation links and land capacity. D. McKinley asked whether this category was worth pursuing on an employment-per-acre basis. Dave explained that these industries can be land intensive with low employment density, but still represent an economic opportunity.

Under the category of **Miscellaneous Manufacturing**, Greg and Dave expect to interview manufacturing firms that must consider non-western Washington locations. Industry segments will include existing firms in the above 7 categories; mobile home and building components; publishing and printing; structural metal equipment; conveying equipment; gears and components; and sporting equipment. The Committee noted that these uses tie in with TRIDEC's efforts, and Greg, Dave and Bill Martin of TRIDEC should discuss this further.

The Committee discussed briefly how the uses of this site could be balanced with off-Hanford sites where these uses could also be sited. J. Terpstra noted that although the study is not designed to develop a plan to compete against other regional ports, it does have a focus on finding positive uses for Hanford lands and facilities that can be justified as being in both the region's and State's best interests. Phase III, when a coordinated program is developed, will include whether or not development potential can be better accomplished with surrounding assets and could include coordinated and cooperative use of all area assets as a joint venture among regional ports.

C. Kilbury noted that some of the rail options that were to be discussed would have problems if they were to be implemented today, including the application of the Rail Labor Act, the benefits of using Pasco Rail Yard for switching, and backhauling challenges. This input was acknowledged and J. Terpstra reminded the group that the timeline of the study is 20 years as well as a vision-horizon of up to 50 years and feasibility must first be found before any changes to rail lines would be implemented. Such issues will be addressed in the feasibility analysis.

The seventh industrial category for analysis is **Transportation Equipment Manufacturing**. This includes the manufacture of rail, truck, air and boat-related equipment. Segments for analysis include railroad equipment; truck/travel trailers; boat manufacturing; space vehicle parts and equipment; and transportation equipment not otherwise classified in other categories. Greg and Dave noted that aerospace was specifically excluded because of the proximity and industry concentration in Western Washington.

Finally, the team will study **Low Compatibility Uses**, which are uses that may conflict with adjacent uses and communities. These could include the following segments: mining; pesticides/fertilizers; explosives; arms and ordinance; and waste disposal. C. Moser and others asked that the consulting team remove waste disposal from consideration, as the region has always engaged in a continuous effort to break the image of other areas' waste repository. The team responded that this segment of the industry could have several opportunities that might not be construed as negative, including recycling and resource recovery power production. N. Aldrich suggested that the team interview Acme Sand & Gravel.

Discussion followed about arms/ordinance manufacturers, recycling companies, and the training academy within the study site, which has considered expansion and the need for additional land. H. Granger reminded the committee that if pesticides and fertilizers are to be studied, irradiation issues were worth examining as well. Several suggestions were offered regarding potential contacts for Greg and Dave to pursue within this subject area.

The Committee concluded the discussion with questions about the interview process. Greg and Dave will try to interview at least two representative businesses in each segment. Several other industries, including air cargo and glass manufacturing, were suggested as potential businesses to interview.

Phase II Activities: Transportation Alternatives

John Terpstra outlined the "Business of Transportation" alternatives that he and other team members would further analyze, and the tasks that would be undertaken in Phase II. This set of alternatives is concerned with the business of moving commodities. The Phase II tasks mirror those for industrial development categories. The team will assess market demand; confirm the existence of a market place or need for the alternative; determine the development requirements of the alternative and preliminary site requirements; analyze potential public investment costs; analyze the financial requirements of businesses; and complete pro forma financial statements for each alternative.

To better understand the implications of transportation alternatives and receive input from industry experts, John will conduct individual industry interviews and a 6-hour focus group session with a small representative group. Included in the interviews and/or focus group will be Livingston Rebuild Center, Union Pacific Railroad, Burlington Northern Santa Fe Railroad, the Ports of Seattle and Tacoma, the trucking industry, shipping lines and shippers. The focus group is tentatively scheduled for September 22. The Committee suggested that the Port of Portland or the Port of Vancouver be included due to the strategic importance of

these areas to shipments and other cargo handling from the Tri-Cities area. John then explained each seven of the transportation alternatives in detail.

The **Eastern Washington Export Consolidation and Shipping Center** alternative requires a central location that will facilitate truck-to-rail intermodal cargo, on-site containerization, the staging of empty rail cars, the acceptance of “short trains” by the railroads, and could facilitate overweight loads. Currently much of this export cargo is carried by truck, so this alternative may reduce truck traffic on Washington’s highways. J. Toomey asked if future opportunities would be explored, in addition to current potential alternatives. John responded that the team would attempt to identify the points at which activities may change in the future and integrate opportunities over time in the 20-year planning horizon. H. Granger noted that the utility of this alternative decreases as the location moves farther south, and may need to take the Wenatchee/Quincy/Ephrata freight corridor into account (this alternative will have particular geographic “pull” depending on where it’s located). J. Toomey explained that the whole transportation corridor must be viewed more globally, as shippers and receivers see this region as a mechanism to transport goods through it. Bob Stewart asked if barge/rail connections would be further explored; J. Terpstra recalled that at the last meeting, little interest existed in the Richland area for increasing barge traffic along the Richland portion of the River. It was also noted that the long-term focus of the Ports of Pasco and Kennewick for barge facilities and accommodation of river traffic appears to be adequate for that mode.

The **Rail Equipment/Empty Container Center** alternative is designed to tap available Eastern Washington space to stage and store empty containers that queue currently near seaports. The concept would be to develop an area for inland storage staging and dispatch. This could include both double-stack container cars and empty containers.

The alternative of **Rail Servicing** would function as a “rail stop for rail,” allowing trains to meet en route operational needs. This requires immediate adjacency to the mainline and could be co-located with other rail operations.

Domestic Auto Distribution Center is a concept that had been previously explored by auto shippers to allow for domestic/regional distribution of autos using rail-to-truck intermodal transportation. It was clarified that the concept would not require tunnel heights at Stampede Pass to be increased as the cars would be coming from the East and move onward throughout the region by truck. A general observation that rail service from the Port of Grays Harbor would be competitive in delivering autos was also clarified as applying to import autos.

A **Rail Equipment Repair and Rehabilitation Center** is an alternative fueled by the momentum of the Livingston Rebuild Center’s presence at Port of Benton. This alternative could serve the region or western U.S. as a central service center for multiple customers, and would allow for co-location with other rail business operations.

Providing **Transportation Services via National Strategic Trade Corridor** as an alternative will also be explored. The Washington State Department of Transportation has assigned a staff member to develop and track this concept. The alternative would provide rail and truck services along a nationally designated trade transportation corridor. This

alternative must be adjacent to mainline rail and/or highway, but can also be co-located with other transportation operations. The Committee discussed briefly a northwest-to-southwest corridor, and connections between the Burlington Northern and Union Pacific rail that might be in the State's interest.

Finally, an alternative to develop an **Equipment Control and Tracking Center** that performs high-tech global tracking and control of transportation and cargoes will be explored. This option is not tied to communications capabilities rather than a specific region for its development, and an existing facility within the study site makes it a potentially feasible option for the Port of Benton.

The group then reviewed two alternatives with strategic transportation implications in greater detail. First, Kurt Reichelt provided a special briefing for the group on the potential rail route improvements and costs of reactivating the **Ellensburg-to-Lind rail route** studied a few years ago. The current route used by the BNSF includes Ellensburg-to-Pasco which is a line in "dark territory," with no Central Traffic Control (CTC) i.e., no signal controls. Travel time from Ellensburg to Lind via Pasco is 4.4 hours. With improved signalization and the shortened line via the old Milwaukee route of Ellensburg to Lind, trains can run over a shorter route and closer together. Two options were studied to redevelop this rail route.

The first option would upgrade the track to high capacity mainline status with full signalization, heavy trackage, concrete ties and additional sidings, with up to 60 mph capability, allowing travel time to be reduced to 2.4 hours and allow 24 trains per day to run on this line. The cost of these improvements were estimated to be \$316 million. The second option would upgrade the line with second-hand rail and conventional ties, fewer sidings and no additional signalization, reducing travel time to 2.6 hours and allowing 10 trains per day to run on the line. The cost of these improvements were estimated at \$204 million.

Additional improvements required to upgrade the route would include re-decking of bridges on the Columbia River and I-90; increasing Johnson Creek tunnel clearance; replacing all wood ties; bypass development and grade separation around the Ellensburg right-of-way which was sold to Central Washington University; and grade separation around State Route 21. The benefits to rail of these improvements would be to cut 80 miles from the route, avoiding severe grade and curve between Pasco and Lind. The bigger picture as to how this new route or improving the current Stampede Pass route might increase overall state rail capacity was discussed. Today the value of the Stampede Pass is tied principally to reducing congestion on the Puget Sound-Portland segment of the service-loop by allowing empty grain cars to move eastbound and conventional box-car trains to move west and east over Stampede. In the future, with increased Stampede Tunnel clearances for double-stack intermodal cars and route improvements on the east side of the Cascades, the route represents an increased capacity opportunity by using a one-way system for the intermodal network, westbound over Stevens Pass, so that "flushing" of the Stevens' tunnel would not be needed eastbound over Stampede Pass. The link to the Hanford Reservation rail line was discussed as another potential strategic rail linkage that appears to have a primary value in bypassing the Yakima Valley and surface congestion in Kennewick and Pasco.

J. Toomey and others agreed that strategically, this option represents the only way to increase east-west rail capacity across the state, meaning that the team and Oversight Panel must consider this option in the most global way possible. Even though an Ellensburg-Lind reopening would bypass the Tri-Cities and not be tied directly to developments on the Hanford Reservation, the Committee expressed the importance of preserving of this line as a rail corridor and right-of-way as part of this study. A. Harger noted that the State's ownership of the Columbia River-to-John Wayne Trail corridor was extended by seven years in the 1999 Legislative Session. Members reiterated their support for maintaining and preserving this rail corridor. J. Terpstra pointed out that the connection of part of the Ellensburg-Lind route to the Reservation rail will be considered either with or without a full connection to Lind. As previously covered, that line would appear to have its greatest value in bypassing the current Yakima Valley line.

John Terpstra then updated the Committee on the development of **Inland Port/Intermodal Center Concepts**. A request of the Oversight Panel during study conception was to identify the drivers of a successful "inland port" or "intermodal center." The task in this analysis is to develop criteria using interviews and research. In his findings to date, John has surfaced a host of generic descriptions outlining these concepts, broadly used, with a range of meanings. In Phase II, the task for this alternative is to more clearly define the concept. The following terms are, in degrees, synonymous with Inland Port/Intermodal Center nationwide: transportation hub; intermodal node; intermodal trade center; distribution center; intermodal hub; rail hub; international trade center; intermodal freight center; rail ramp; transportation services center; intermodal services center; intermodal services and commercial center. One of the key attributes is proximity to a population center. Within all these descriptive terms lie business activities that include international commodities, transportation operations, transportation efficiencies, and changes in transportation mode. There appear to be three valid levels of inland services that will help define the drivers for success and they are being developed to assist in that analysis: transportation services center, intermodal services center and intermodal services/commercial center.

The Committee queried the need for customs requirements for less-than-truckload cargo and the need to move long trains out of seaport areas expeditiously. A description of cargo movement needs from the seaports was briefly presented, including the fact that at least 70 percent of international containers flow from the seaports to the Midwest and East Coast, moving only "through" the eastern part of the State with no incentive to stop en route. The details of cargo flow, less than truck load cargoes and customs needs, will be addressed as part of the inland seaport operations support alternative.

The Committee closed the meeting at 12:10 p.m. Briefing sheets will be distributed to all members later in September as additional Phase II information is available, and the group agreed that starting the meeting earlier (at 8:30) would be acceptable. The next meeting will signal the close of Phase II, and the study team will report Phase II findings. The next meeting is tentatively scheduled for Wednesday, October 20, 1999, from 8:30 to 11:00 a.m. at the Port of Pasco offices. A confirmation, street address and driving directions will be distributed prior to the meeting.

**State of Washington/Port of Benton
Hanford Investment Study
Stakeholder Advisory Committee Meeting #4
October 20, 1999
Meeting Summary**

Members Attending

Nancy Aldrich, City of West Richland	Dan James, Pacific Northwest Waterways Assoc.
Curt Andrews, City of Othello	Roy Keck, Energy Northwest
Carolyn Ballard, U.S. Department of Energy	Charles Kilbury, City of Pasco
Ben Bennett, Port of Benton *	Jim Mecca, U. S. Department of Energy
Gretchen Borck, Wash. Assoc. of Wheat Growers	Mike Rike, Tidewater Barge Lines
Kevin Daly, Benton-Franklin Ccl. of Governments	Jerry Schneider, Fluor Daniel Hanford
Dave Evans, U.S. Department of Energy	Bob Stewart, U.S. Department of Energy
Howard Granger, Port of Seattle Inland NW Office	Jim Toomey, Port of Pasco
Alan Harger, Washington State DOT	Van Voorhies, City of College Place

(* = member of Project Oversight Panel)

Consulting Team

John Terpstra, HDR Engineering	Greg Easton, Property Counselors
Dave Eacret, Real Estate Economics	Paul Sorenson, BST Associates
	Marty Wine, Berk & Associates

Industrial Development Feasibility Summaries

Greg Easton and Dave Eacret presented a review of the purposes of the Phase II Industrial Development process. During this phase, they have embarked on an in-depth study of target industries, a forecast of market demand by industry category, a projection of net acreage requirements, and projection of public investment, and potential community benefits for each alternative. Their findings are based on interviews in the Tri-Cities of representative businesses, an understanding of the development requirements of each industry, the typical siting and building requirements of each industry, the Hanford target industry demand projections, the Hanford required net acreage by facility types, and the public investments by facility type.

D. Eacret described the building types used as a basis for investment evaluations with photos of each type. They include high-tech/flex buildings, research and development (R&D) buildings, large manufacturing buildings, office buildings, warehouse distribution buildings, and multi-tenant buildings. The findings within the study area are that the eight industrial categories advanced from Phase II will generate growth of approximately 10,000 new jobs overall (from approximately 3,600 currently to 13,600) between now and the year 2020. (The categories include energy, environmental, advanced materials, information and communications, wholesale and distribution, miscellaneous manufacturing, transportation equipment manufacturing, and low compatibility uses). They project that information and environmental categories have the strongest basis for growth of all the categories. Dave and Greg have converted these employment estimates to required acreage for development and found that these industries will require about 1100 additional net acres of land. Estimated investment required per acre will depend on whether an existing or undeveloped site is chosen. Costs are higher on undeveloped sites. All prevailing land prices range from \$2,500 to \$28,000 per acre assuming services brought to the lot line.

The Committee reviewed highlights of each industrial development category, summarized in the two tables below. (These are identical to the slides in the handout, organized by category. The acreage totals are net useable, buildable acres, and the cost of public investment category represents the amount to extend utilities beyond existing facilities to new sites on a per acre basis. J. Terpstra reminded the Committee that public investment can take the form of subsidy rather than direct financing, but that some of these costs are likely to decrease within a coordinated program.

Industrial Category	Key Demand Factors
Energy/ Energy Systems	Strong job growth in this industry, both renewable and non-renewable resources, heavy demand for communications including fiber optics, projected growth statewide of 1.2% with a Hanford area share in 2020 of 8.2%.
Environmental	Strong job growth in this industry, intensive use of Hanford scientific talent, leveraging the existing critical mass of knowledge. Projected growth statewide of 2.0% with a Hanford share in 2020 of 9.2%.
Advanced Materials	Growth in the use of this industry by the aerospace, automotive and miscellaneous manufacturing need for proximity to suppliers and customers, energy and labor key cost factor. Projected growth statewide 1.8% per year with a Hanford area share of 3.5% in 2020.
Information/ Communications	This is a key sector for communications and data services. GTE fiber optic is an important link, with labor as a key cost factor. Projected growth statewide is 3.5% with a Hanford share of the growth of 2.6% in 2020.
Wholesale/ Distribution	There is a slow growth outlook for the entire industry. Critical to have nearby freeway or major arterial access. The Hanford location is limited for this industry. Availability of labor at modest hourly rates is critical. Projected growth statewide of 1.2% annually, with a projected Hanford share of 0.4% in 2020.
Miscellaneous Manufacturing	The Puget Sound share of this sector is planned to drop by 10%. The Hanford area is competitive for sectors with regional markets and high labor and land costs. Projected growth statewide at 1.9% per year with Hanford projected 2020 share of 4%.
Transportation Equipment Manufacturing	Market opportunities exist in locomotive services and rail care manufacturing. The existing Hanford line is an asset. Proximity to buyers is not critical to truck trailer manufacturing. Projected growth statewide per year is 0.9% annually with Hanford share projected to be 2% in 2020.
Low Compatibility Uses	Strong interest by sand and gravel and explosives industries. Limited number of potential users. Projected growth statewide is 0.9% per year and 7.6% shared by Hanford area in 2020.

Category	Projected Employment Growth through 2020	Acreage Required	Building Types	Building Ownership	Public Investment per Acre	Developer Cost/Acre	Community Benefit: Add'l Gross Receipts
Energy/ Energy Systems	595	35	“Flex” and R&D	Lease or Own	\$24,500	\$56,000	\$137 million
Environmental	3,570	210	R&D	Lease or Own	\$24,500	\$56,000	\$385 million
Advanced Materials	720	60	Manufacturing	Own	\$10,000	\$12,000	\$216 million
Information/ Communication	3,000	160	Office or “flex”	Lease or Own	\$24,500	\$56,000	\$600 million
Wholesale/ Distribution	330	85	Warehouse	Lease or Own	\$3,700	\$6,500	\$198 million
Miscellaneous Manufacturing	1,040	80	Manufacturing	Own	\$10,000	\$12,000	\$109 million
Transportation Equipment Manufacturing	300	25	Manufacturing	Lease or Own	\$10,000	\$12,000	\$54 million
Low Compatibility Uses	150	510	On-site utilities	Own	\$0	unknown	\$15 million

J. Terpstra noted that the estimated public investments would be reviewed and refined in Phase III along with the formation of a coordinated program of development that will reduce total investment costs.

The Committee discussed whether rail would be an issue in the Energy Systems industry; J. Terpstra assured the group that none of these users would use rail extensively as defined today. However, in Phase III the potential for a low compatibility use such as resource recovery power generation may have to consider rail access investments. Regarding “advanced materials,” G. Borck noted that the study team should consider whether there was support for any of these alternatives in other parts of the Tri-Cities. N. Aldrich stated that it was unclear whether jurisdictions could handle the population growth that will come with such growth because of water rights issues. The study team said that none of these industries were significant water users and the City of Richland believed that these types of industries could be absorbed. The team has not yet addressed the indirect impacts of associated population growth but will include that question in Phase III. R. Keck noted that these increases could be net of Hanford downsizing, meaning community impacts may well be able to be absorbed. N. Aldrich further noted that some businesses bring in peripheral industries and should be considered by the study team.

On the topic of the communications industry, J. Toomey pointed out that an ongoing issue with “black boxes” connected to fiber optics is whether the investment is considered public or private. G. Easton said that they are not considered part of the public investment costs in this analysis since they are attributable to a private utility. J. Toomey asked for a sensitivity analysis for the forecasted Hanford-market-share percentage of the growth.

Dave and Greg concluded that a strong demand existed for nearly all of these industrial opportunities for location in the Hanford area because of already existing Hanford-unique technology sectors . The miscellaneous manufacturing category would work throughout the Tri-Cities. Transportation equipment would fit best with rail options, and low compatibility users are often self-contained within a “buffer area.” The regional distribution option requires direct freeway connections. Public investment would be required principally for the extension of basic infrastructure, and land sale proceeds would be small but could exceed basis depending on final infrastructure costs.

Business of Transportation Feasibility Summary

P. Sorenson and J. Terpstra presented business of transportation evaluations with the exception of two alternatives, East-West Rail and Inland Operational Support of Seaports, which will still be under review in phase III. Their considerations and recommendations on the seven alternatives passed on to Phase II included both the opinions of a special industry focus group of transportation professionals and demand forecasts for each alternative.

Eastern Washington Export Consolidation Center. P. Sorensen has examined the different commodities moving by container that need to be considered (hay, apples, potatoes, beef and forest products). Origin and destination are critical factors. Based on the relative transportation costs to carry one ton one mile, the most likely way for these commodities to be carried is by barge including those that might currently be moved by truck to shipping lines calling only in the Puget Sound. Because of recent joint ventures, most lines provide service from Portland via barge for these container exports. Rail rates today are only slightly lower in ton-miles than trucking and not expected to dramatically improve in future years because of competing railroad businesses. This fact and the rail systems’ inability to meet service requirements for short runs and relatively small volumes make rail less competitive for the foreseeable future. Additionally, even lowered rail rates and capacity increases would not likely overcome the combination of costs of trucking, intermodal transfer and rail to a centralized facilities at Hanford or other Central Washington site. The Committee discussed the fact that Hanford itself is not as competitive as other areas around the Tri-Cities since the area represents a greater transportation cost than many other current modes and corridors. Public investment of \$6 million would be required at Horn Rapids Rail Center with relatively few jobs or spin off potential. The recommendation at this time is not to pursue this option beyond Phase II, since there is not a clear and compelling demand and the rail industry has not shown an interest.

Domestic Auto Distribution Center. P. Sorensen identified the demand characteristics of this alternative, what exists now in the transportation system, and the relative costs. There is an even balance between domestic and import units by origin and mode, with imports coming in from Seattle, Tacoma, Vancouver and Portland and domestic cars from inland by rail to points close-by the seaports. This indicates a balanced flow of products working well for the sector now. In addition, rail ramps already exist in all major population centers, served by truck to meet just-in-time requirements for deliveries to dealerships. The additional trucking cost to go through a Central Washington facility for current domestic volumes is estimated to be \$37 million, offset by a \$9 million reduction in rail cost, still

leaving the net cost to go through a Hanford or other area site to be \$28 million, or \$84 per vehicle higher than current distribution costs. In addition, based upon the railroads' position five years ago when this opportunity was addressed, they would not likely build such a complex themselves. Public investment would therefore be much higher and represent a considerable risk because of their inability to guarantee usage levels and returns. The public investment required at Horn Rapids Rail Center for this option would be \$17 million with relatively few jobs or spin off potential. Based on these factors, the study team is recommending that this option not be advanced to Phase III.

Rail Equipment Repair and Rehabilitation. This potential is based on growth of LRC's parallel and current business at Port of Benton. P. Sorenson presented potential demand for service for freight cars, locomotives and passenger cars, which have been LRC's focus. The trend is from independent facilities and toward centralized, contractor operated, railroad owned repair and rehabilitation facilities. Additionally, the increase in leased equipment would favor this work being done under contractual arrangements with the lessor and under warranties and light rail vehicles. It is anticipated that the LRC repair and rehabilitation business will continue to be viable and grow modestly with continued public investment in skills and technology training. However, the future for component manufacturing and fabrication of rail equipment has been identified in this demand forecast as well as the industrial forecast as a growth area. It becomes an obvious spin-off of this business and facility. Although the modest growth potential of repair and rehabilitation alone may have left the original concept out of Phase III, it is considered to be a feasible candidate mix between the business of transportation and industrial development breakouts. Continuation of the current and modestly growing LRC operation does not require significant additional public investment except in the areas of rail and technology skills building. Public Investment in rail equipment manufacturing and fabrication will be approached in Phase III as an industrial development undertaking.

Cargo Tracking Center. This targeted business opportunity was not able to be identified other than as a specific and unique use of existing building 1163. No specific demand for that use could be found at this time. The concept as a use for that building may prove viable but for the study is better defined as a recruiting target rather than part of a long-range development plan. Accordingly, this issue is not recommended to advance to Phase III.

Rail Equipment and Empty Container Staging Center. Based upon a lack of current hard demand for storage, staging this far inland, increasing capacities for staging at or near the seaport intermodal facilities, this type of facility was not considered viable by the industry focus group. Over the next 10 to 20 years, there is not enough potential to justify inclusion of such a facility in the coordinated Phase III program. However, during the development horizon of 20 years, and especially as the issues of meeting high volumes of containers inland become a reality, this opportunity could be revived. Public investment for trackage and laydown at Horn Rapids would be \$3.4 million with relatively few jobs or spin off potential. "Agile Port" concepts, originally developed for Southern California, include the handling of all operations inland to get them off the waterfront. As that concept is debated and developed in future years it could be worth examining this site further but the industry focus group felt that it was too far inland even for an Agile Port approach. A known and compelling actual demand for those inland services would have to exist.

Rail Servicing Centers. Current demand for this type of center, especially centralized fueling, is very limited and currently is met by a proposed long term site at Hauser, Idaho for the BNSF and the existing site at Hinkel, Oregon for the UP. There are other sites for train inspections and crew change only, such as Pasco, but those are served by the railroads own operations. Without Hanford being on the main line the opportunity is non-applicable. Potential new centers are unlikely in the future and the Tri-Cities area is not an ideal location geographically. This potential, with or without a National Trade Corridor designation is not recommended for further consideration in Phase III.

G. Borck asked whether the Hauser, ID site currently being pursued by the BNSF could be sited here. J. Terpstra responded that the Tri Cities is geographically part of the “loop” desired by rail; that getting around the loop without refueling was a primary concern with the Tri-Cities in the wrong location; and that rail fuel taxes in Washington were apparently higher than in Idaho.

Update on Inland Port/Intermodal Center Criteria Development

Today the Oversight Panel will be presented with a technical memorandum for their consideration that identifies the successful drivers of an inland port/intermodal center. J. Terpstra conducted a focused survey of eight jurisdictions across the U.S. that had developed what they believed to be an inland port/intermodal center.

Some of the drivers of this type of development includes: a demand to distribute goods; site location; a need for intermodal shift of goods along the way; route geography; proximity to population center; transportation efficiencies; a niche business or another known demand.

The factors or screens which were found to apply to most widely to various example sites include: two class 1 railroads; proximity to a population center; direct access to intermodal networks; site availability; and clear demand.

Because there were varying degrees size, components, viability and success for all the examples, it was found that a series of criteria could be better applied. J. Terpstra presented three new definitions that better refine the concept being discussed, including:

1. Freight Transportation Services Center (makes the transportation mode more effective);
2. Freight Intermodal Services Center (has a reason to change mode);
3. Freight Intermodal Services and Commercial Center (combines the first two and generates substantial commercial growth).

John provided a brief description of what would make each feasible. The first concept requires location on a Class 1-rail route with a site immediately adjacent; a clear and reasonable basis and clear demand. The second concept requires all these plus direct access to an intermodal network “node” and proximity to population. In addition to all these criteria, the third item requires two Class 1 rail routes (competition exists).

Update on Special Transportation Issues with Strategic Implications

J. Terpstra updated the group on findings in these areas thus far. Evaluations will continue into Phase III and be presented as part of a special interim report on strategic transportation issues.

East-West Rail Route Improvements.

- **Ellensburg to Lind.** The drivers of this option include increasing the rail capacity and yielding a decreased operating cost from Ellensburg to Spokane and reduced grade crossing impacts, Yakima-Kennewick-Pasco.
- **Ellensburg to Beverly to Reservation to Pasco.** A single driver exists -- reduced grade crossing impacts, Yakima-Kennewick-Pasco. It was noted that there is no advantage to Hanford development opportunities by having the mainline rerouted through the reservation.
- **Stampede Tunnel Improvements, Ellensburg to Lind, one-way Loop (Stevens-Stampede).** Drivers include increased statewide rail capacity, decreased statewide operating costs and reduced grade crossing impacts, Yakima-Kennewick-Pasco.

Preliminary findings of the regional economic value provided by rerouting the current Stampede Pass line included the observation that the mainline is not necessary for Hanford developments. In addition, only reasonable access to the mainline is necessary; intermodal centers are driven by direct access to a “node” on an intermodal network; some manifest train improvements might be seen; and rerouting does not cause specific growth potential for Hanford or the Tri-Cities.

Evaluations are still underway to establish potential State interests in reduced grade crossing impacts, confirming increased statewide capacity potential and the role Ellensburg-to-Lind might play.

Inland Support for Seaports. The challenges for this alternative include larger ships and higher volume of imports in the future, limits on terminal space and rail capacity, and highway congestion. The drivers for demand for this support include a need to meet market-share challenges for intermodal transportation, whether an operational need would exist to re-handle freight, and whether movements and double handling can be cost-effective. Logistically, the Tri-Cities seems too far inland to achieve this alternative. The focus group observed that while this idea was helpful, no clear need existed. P. Sorensen identified container forecasts through 2020, primarily driven by growth in international use, and when compared with capacity, it appears the system will be able to handle containers as they do now without dramatic increases in waterfront space. Further definition and evaluation of the Agile Port concept would be worthwhile, but otherwise little demand appears to exist for this strategic potential. All aspects of use of Hanford or other Central Washington assets for support of the Seaports will be continued into Phase III with a focus on confirming the industry focus group’s conclusions, further definition and evaluation of the Agile Port concept as it might be applied at Hanford and in determining long range demand patterns.

Study Milestones and Next Meeting Topics

The next meeting will be at the close of Phase III with a coordinated program of development. Briefing sheets will be distributed to all members in November as additional Phase III information is available. The next meeting is tentatively scheduled for Friday, December 10, 1999 , from 1:00 to 4:00 p.m. at the Port of Benton offices. A confirmation, street address and driving directions will be distributed prior to the meeting.

Appendix II Technical Memorandum Number 2: Inland Port/Intermodal Center Criteria



Technical Memorandum

**State of Washington/Port of Benton
Hanford Investment Study**

**Technical Memorandum No. 2
Inland Port and Intermodal Center Feasibility Criteria**

This memorandum expands upon Technical Memorandum Number 1: Feasibility Criteria completed in Phase I of this study. This paper identifies criteria to better define the drivers for the successful development of contemporary transportation-freight-distribution centers. Such centers are often given the name “inland ports” or “intermodal centers.” The HDR team will use the criteria to evaluate the potential candidates of transportation facilities. The criteria will be applied to properties and assets provided to the Port of Benton from the Hanford Reservation or in surrounding areas.

The intent of this memorandum is to first define and develop the terms “inland port” and “intermodal center,” and to describe the many variations and nature of transportation services, freight movements, and commercial development that comprise them. Secondly, this memorandum provides criteria for evaluating the potential for developing an inland port or intermodal center facility.

In addition to the professional opinions of the consultant, definitions and criteria established in this memorandum are based principally upon a focused survey and evaluation of selected existing facilities generally known by port and transportation industries to typify these types of centers.

The establishment of criteria to determine feasibility is helpful because set standards allow realistic and relatively objective measures to assist in reaching conclusions about the viability of an economic development strategy. Without evaluation criteria, the analysis could depend on subjective measures, short-term events, or different interpretations of the definition of feasibility.

As the study progresses, the criteria may be modified or new criteria may be established. In addition, the criteria need to be applied judiciously with an appreciation of the advantages, disadvantages, and interrelationships of the potential economic development strategies. For example, a candidate strategy may not be dismissed if it does not meet the criteria because that candidate strategy may support another candidate strategy with a higher degree of feasibility.

The objective of the study is to determine if a successful program of development using the available Hanford Reservation lands and other assets is “possible, reasonable, and/or likely”. Moreover, the feasibility study will focus on determining whether such development and potential public investment would be in the best interests of the state of Washington and/or the Port of Benton, and whether the program is “achievable, attainable, practicable, practical, and/or workable.”

BACKGROUND

The intent of the state of Washington/Port of Benton Hanford Investment Study is to consider the viability of economic development and investments, on Reservation lands. These lands include properties and facilities that the Port of Benton has received or could receive from the Hanford Reservation. Competing and/or complementary surrounding properties and facilities will also be considered in establishing feasibility.

Although the study scope strongly emphasized industrial and general economic development, the study also focused on the unique transportation opportunities on the Hanford Reservation and within the Tri-Cities region. Phase I concluded that eight groups of industrial businesses and nine businesses of transportation were preliminarily feasible.

Strategic Implications and Local Vision

Two of the candidates categorized as “businesses of transportation” were determined to have potential statewide strategic implications: East-West Rail Route Improvements and Inland Operational Support of Washington Seaports. Additional emphasis on issues of transportation have come from stakeholder feedback and the long-term vision of the Port of Benton, which sees some type of intermodal center or transportation hub being developed on excess Hanford lands using its rail and land assets. Similarly, other local entities have also envisioned similar facilities elsewhere in the Tri-Cities area. This local perception is exhibited in the publication of a joint private and multiport brochure describing the area’s port assets as “inland ports.” It is therefore important that consideration be given to the broader concepts of a transportation hub as well as to the detailed evaluation of the businesses of transportation. These criteria will provide means to screen these proposals and guide feasibility evaluations, and may be applicable statewide.

GENERAL DISCUSSION

International and domestic trade is booming throughout the country, and freight mobility is attaining the attention needed since the deregulation of trucking and rail brought the nation into the “Intermodal Age.” Eighty percent of international container trade for the entire United States, and for the Asian Far East, flows through west coast seaports and except for regional distribution by trucking, moves to and from those ports by rail. Similar systems of ship-to-rail-to-truck intermodal movements exist on the other coasts, but to a lesser degree. Massive logistic systems for moving domestic goods also use truck to rail intermodal movements. The nation’s population centers need regional distribution hubs to move goods to the consumer and goods from regional production to distant consumers. There are literally hundreds of transportation and distribution centers and most provide some degree of

intermodal service. For the purposes of this study, these centers could be called “intermodal centers” or “inland ports.”

Economic development entities view these regional, state, and national requirements as opportunities for growth, especially in locations that have rail and highway assets. The goal of many public economic development entities, mostly in partnership with private business, is to become centers of transportation, not only for the business of transportation economic value that they bring but for industrial and commercial development as well.

High Demand: A Serious Challenge in Some Regions

Where high transportation demand exists, as a given, the need for cost-effective, efficient movement and distribution of goods often becomes a challenge rather than an opportunity. At obvious hub points of transportation such as major seaports and large population centers, demand for mass movements and distribution of goods becomes a challenge rather than an opportunity. For example, if a high demand arises for cost-effective movement of containers from truck to rail to serve consumers and producers, basic supply and demand drivers prompt government and business to meet the challenge. It is not a revelation that economic development entities in those regions find it economically feasible to be transportation centers to meet demand.

This study must address more than just reactions to demand. Supply and demand for transportation will play a role in determining the feasibility of “inland ports” or “intermodal centers” for regions like the Tri-Cities. For instance, demand created by new industrial development must be met or the industry will not develop. What is more difficult is to identify drivers for measuring a site’s ability to meet a known demand or even attract demand-driven businesses that might have choices of sites. It is no more valid to assume that some sites will develop into intermodal centers or transportation hubs just because high capacity transportation modes traverse and intersect in the region than it is to assume that development will happen if there is a demand for it. The real question to be answered is *“What are the factors or drivers that make a candidate site viable for meeting a known or predicted demand?”*

What’s In a Name?

Based on a focused survey and on reviews of local and federal intermodal programs, the terms “inland port” and “intermodal center,” or similar names, are not definitive enough to generically evaluate freight transportation centers. For instance, the TEA-21 bill listed hundreds of priority project “intermodal centers” or “transportation centers” that are people-oriented, e.g., pedestrian to bus, car to bus, bus to rail and park and ride intermodal complexes. Numerous entities are using terms such as “freight center,” “cargo center,” “international trade center,” “rail hub,” “intermodal park,” highway hub,” transportation hub,” etc. These facilities are often given those names for marketing/merchandising purposes. The names of these sites are, of course, secondary to defining the service, facility, or center in such a way that valid criteria can be developed.

USING EXPERIENCE AS A GUIDE

Seven facilities were selected for telephone interviews to determine their features and drivers for development. One contemporary “inland port” concept-under-study was also selected for evaluation as a long-term driver of inland support facilities. Interviews were arranged with top management of each facility and a standard list of questions was broadly followed, where possible. Questions focused on the function of the facility, its configuration and components, services provided, governance, financial success, public and private financing, drivers that prompted the development, and how successful it has been in meeting expectations. From this information, drivers of development were identified and translated into criteria.

Greater Columbus Inland Port

The current status of this well known endeavor, and one of the first to call itself an “inland port,” is now a coordinated marketing arm of the Greater Columbus Chamber of Commerce. The port undertakes the “bubble concept” approach to economic development and marketing of the many transportation, industrial, and distribution capabilities of the entire city with a small, 1½ full-time staff within the Chamber’s Infrastructure Development Group. It is guided by a volunteer group of government and private officials that form the Greater Columbus Inland Port Commission. The port does not own or operate any facility but proudly touts its strengths in the Columbus area as:

- Being within 10 hours by truck from 61% of the U.S. population and 35% of the Canadian population.
- Two major airports, one of which is cargo-only
- CSX and NS railroads both serve the port
- Three rail-truck intermodal yards handling 175,000 lifts annually with capacity for 400,000 lifts
- 108 million square feet of warehousing and distribution
- Publicly owned and operated cargo-only airport with 80 acres developed for commercial/industrial sites which can grow to 130 acres (formerly Richenbacker AFB)
- 130 truck lanes, 38 freight forwarders, representatives of major steamship lines and other support services
- The midwest’s second largest container port

Original Concept. Although the original concept for establishing an “inland port” was to be an operating facility, this option did not prove to be feasible. The objective was to form a public port authority that could create an intermodal facility capable of attracting direct intermodal rail connections in Columbus for international containers. The concept was originally evaluated in the early 1990s as a means to eliminate the truck drayage or slow connecting train deliveries from rail ramps in the Chicago area, which today still retains the status of a primary node on the Class 1 railroad intermodal networks. Manufacturing and distribution in and from the greater Columbus area are substantial and aggressively marketed

but apparently have not been enough to prompt development of a true international cargo hub instead of continuing to depend on Chicago.

Seaport Partnerships Pursued. It was additionally perceived that partnerships could be formed with selected seaports to designate Columbus as a destination for midwest distribution and intermodal, rail to rail, transfers. The reality is that routing of rail or designation of seaports is not in the control of either a shipper or seaport. Shippers purchase door-to-door services from the steamship lines, which include the rail and trucking legs. Railroads establish their own routes based on many factors that may or may not designate certain locations as hubs. Columbus remains a player in prompting freight movements, but it has been driven principally by its location to population and the presence of major manufacturing and distribution facilities.

An Economic Development and Marketing “Bubble.” The strategy is to mobilize all of the assets of greater Columbus and to market it as a single, large “inland port.” (This is a viable approach and a reasonable use of the term). For the purposes of this study, the approach of Columbus might be more properly characterized as a transportation demand center with capability of serving beyond its immediate region.

Drivers for Original Development:

- Prompting direct international intermodal services
- Becoming a less congested alternative to rail ramps in the Chicago area
- Enhancing the area’s manufacturing and distribution businesses by increasing its market share radius to 250 miles
- Using a Public Port Authority to support economic development and transportation infrastructure endeavors

Objectives Met:

- Enhanced manufacturing and distribution businesses
- Created an effective marketing effort focused on transportation advantages

Alliance Park, Texas

This is perhaps one of the best known transportation and commercial/industrial centers in the country perceived to be an “intermodal center.” It is a mostly private undertaking along with a public-private partnership in creating the Alliance Park Airport and site infrastructure. This center is developed and managed by a corporation tied to the Perot family and is well financed and successfully developed in concert with public interests. The complex, on the extreme outskirts of the Fort Worth, consists of about 10,000 acres with a cargo airport owned by the city and a BNSF intermodal rail facility. The 10-year-old complex is well on its way to full development, principally through sale of developed parcels to industry. It contains 13 million sq. ft. of developed distribution, manufacturing and commercial space which represents 30 percent of maximum. The complex is an ideal point for distribution of

goods that arrive by rail, truck, and air cargo. It meets the demand of 4.5 million people, both consumers and producers, within 40 miles.

Multi-Regional Distribution Center. Even with this large regional population base, a high percentage of cargo and distribution volumes go beyond the 40 miles, throughout a 500-mile radius serving a 7-state area and 8 million people. Two factors appear to account for this high throughput cargo and wide distribution area. First, 60 percent of lifts at the BNSF Intermodal Yard are international containers from the Ports of Los Angeles and Long Beach which move intermodally, rail-truck, to the region and rail-rail for further movement to the south via Kansas City Southern Railroad. Additionally, a significant volume of trailers-on-flat-car are handled by the yard for the trucking firms J.B. Hunt and Schneider who improve their domestic long haul efficiencies, changing to truck movement at Alliance Park.

Secondly, regional distribution centers, warehousing and manufacturing businesses with wide distribution requirements have been attracted to the site by demand for consumer and producer services and the availability of efficient and cost effective transportation (J.C. Penny Americas Distribution Center serves all of U.S. except California). The availability of all modes of transportation is important for attracting these industrial and commercial businesses but perhaps the biggest driver is the presence of the BNSF Intermodal Yard and its status as a principal node on their Intermodal Rail Network. An example is Nokia Cell Phones, which brings components to its facility by all modes and regularly ships a million completed phones outbound monthly by air. Alliance is a good example of a commercial center being created around the synergy of a favorable transportation hub location and large pool of consumers and producers.

Rail-Air Intermodal Not a Factor. Although many observers of Alliance are impressed by the proximity of a major rail facility, cargo airport and key interstate highways, the intermodal connections are limited to rail-truck, air-truck and rail-rail. There is an absence of rail-air, which coincides with experience on the west coast where sea-truck-air intermodal business was a small, short-lived, niche. Meeting the demand of pure cargo carriers for general business packages drives airport cargoes and commercial air freight needs of the Alliance complex, Greater Fort Worth and regionally. It includes a Federal Express hub and an American Airlines maintenance center.

Early Drivers of Success. Alliance Park began with a vision of private developers for a strategically located commercial center to serve the Metroplex of Dallas/Fort Worth and their opportunity to acquire large parcels of inexpensive land on the extreme outskirts of the City of Fort Worth. At the time, many developers advised that the site was too far outside of the City. A public/private partnership was formed to ensure a high quality greenfields development that would be important for attracting business. This partnership focused on avoiding two common mistakes made by public entities that are targeted to become an Alliance Park. First, a reliance on surplus military complexes or brownfields, which tend to be worn out, in poor condition, and dependent on existing facilities not adaptable to modern business needs and desires. Secondly, a failure to allow a private developer to control and insure a high quality of planning and development with a professional management team.

Opportunity to provide for a single developer needs helped make it financially successful. The ability to provide business with land ownership was essential.

Public Support and Partnership. An anchor facility for the complex and a major part of the public/private partnership was the development of the cargo airport. Four hundred acres of land was donated by the corporation to the City of Fort Worth, which in turn used it as local matching value for federal funding of the airport's design and construction. Initial development of the remainder of the 10,000-acre complex was also supported by the City, with \$40 million in basic infrastructure such as roads, utilities, etc., and abatements on taxes for the development. Return on investment for the City has been in jobs (tax abatements based on numbers of jobs created) and in new taxes collected (which amounted to \$23 million in 1998 alone).

Drivers for Original Development:

- Opportunity to become a primary commercial center for the Metroplex
- Take advantage of a strategic site
- Obtain a high quality workforce
- Assure cost-effective and efficient availability of all transportation modes and hub status on intermodal networks (to include passenger air)
- Public partnership making basic infrastructure available
- Land ownership at "more than reasonable" rates
- Opportunity for private professional management and control of development
- A site attractive to business and ideal for marketing
- Opportunity for private financial success

Objectives Met:

- All the above

BNSF Hauser Fueling Facility

This facility is currently a little-used area of storage tracks adjacent to the mainline near Rathdrum, Idaho, originally developed for staging of westbound grain cars. The railroad has proposed using the facility as a fueling, "gas and go", site. It provides an example of rail services, track geography, and population center drivers and how they might beget an "intermodal center."

Location-Location-Location. The site's location has become the primary driver for developing this rail service center. The BNSF Intermodal Network track geography for the Pacific Northwest can be viewed as a series of two connected loops west of Spokane. The route traverses Stevens Pass on the north, on the west side of the Cascades along Puget Sound, at mid-State via Stampede Pass and Pasco back to Spokane and on the south via Portland, the Columbia Gorge and Pasco back to Spokane. As with any transportation system, centralized servicing is mandatory for efficiency and for railroads represents fueling only when necessary at as few centralized points as possible. The current fueling center is

Haver, Montana, which because of distance requires a costly and operationally impacting need to fuel within the loops at Ballard, Washington. Puget Sound rail capacities are substantially reduced by the need to move locomotives from the intermodal nodes to Ballard via the mainlines just to fuel and then return.

Moving the centralized fueling location west from Haver to an area between Spokane and Hauser will allow a single fueling point, removing the impacts of required fueling west of the Cascades. Why Hauser, Idaho, rather than Spokane where their current eastern Washington node exists for the their intermodal network? It was uncertain as to whether there were siting problems for such a facility at the Spokane yards. But one driver is an unconfirmed fact that fuel taxes in Idaho for this type of operation are less than in Washington.

An “Intermodal Center” Windfall? Speculation is that this facility, if ever developed, provides the railroad with some valuable options for future consolidation of operations to include movement of all rail services and crew changes to the site as well as moving the intermodal operations currently in Spokane. Origin and destination of intermodal cargoes will dictate the location for establishing a node on the intermodal network such as is the case in Spokane. Hauser is only 13 miles east of Spokane, which could qualify as being a Spokane intermodal node.

Drivers for Original Development:

- Improve operational efficiency – single fueling point
- Reduction of costs – operating efficiencies and fuel costs
- Use a railroad-owned, under-used facility adjacent to the mainline
- Possible: long-range opportunities for consolidating operations

Objectives Met:

- Fueling facility proposed for development but meeting public opposition due to the site’s location over the Spokane aquifer
- Consolidation of operations and opportunities for an intermodal node and center are only speculation but is an example of what might drive such a facility to be developed

Virginia Inland Port

A fully owned and operated extension of the port of Norfolk (Virginia Ports Authority) at Front Royal, Virginia, 71 miles west of Washington D.C. and 220 miles from the seaport. The 161-acre site is specifically designed and built for rail-truck intermodal operations with more than 17,000 feet of storage track, a small cross-dock warehouse, interchange gates, and full international USDA inspection and customs services. Its principal service is a five-day-a-week overnight single train shuttle of containers from the Port of Norfolk area to Front Royal. At the inland port site rail-truck intermodal operations allow cost effective and efficient delivery of containers to final destinations into the population centers of Washington D.C., Baltimore and Western Pennsylvania. The rail shuttle is operated under contract between the Port and Norfolk Southern at rates not disclosed. The Port's tariff to shippers is currently \$225 for loaded container and \$147 for an empty container.

Market-Share Driven. The Port of Norfolk purchased the Front Royal site 11 years ago to develop a means to meet a market-share challenge. The Port of Norfolk lies at the mouth of the Chesapeake Bay while the Port of Baltimore is about ½ day steaming beyond, into the upper bay. Norfolk had the port location advantage to attract shipping calls but Baltimore was closer to the population centers of international cargo consumers and producers. Trucking costs were non-competitive from Norfolk for those population centers and more than one shipping line customer threatened to relocate to Baltimore. Norfolk responded with a scheme to move the trucking leg of transportation closer to the population center and gain competitive trucking costs. The site was ultimately given the name of an inland port probably because of the industry hype over such new concepts at the time.

Subsidized? But Still Justified. Although there could be some small savings by using a rail-truck intermodal move over former trucking costs, they are likely eaten up by the double handling of each container at the Port and at Front Royal. One factor that might be mitigating the double handling costs is a reduced cost per box in the Port-railroad contract by not forcing the overnight trains to be exclusively for the Port. Domestic moves between the Norfolk area and Front Royal were quite common, producing additional railroad revenue in the early years of the operation. The Port was reluctant to describe this operation as subsidized even if the rail contract fees would be expected to be more than the collected tariff. However, an understanding of competitive issues of retaining shipping line calls at the Port itself e.g., jobs, debt service coverage, returns on investment, would provide a financial return scenario that has the train subsidy, if there is one, easily recovered through continued or increased revenues at the Port itself.

Does It Beget Industrial/Commercial Development? As the facility was being constructed in Front Royal 11 years ago, the local economic development entities were excited that it would beget a commercial center that would attract dozens of industries and commercial development. Their perceptions were similar to dozens of locations across the country today, that a transportation center will bring growth and economic development. Economic development for Front Royal has consisted of the 13 jobs in the yard and the trucking activity. Over the 11 years, there has been little or no spin-off development that could be traced to the presence of the inland port. However, during the last 2 years, a new and

aggressive economic development executive for the area has managed to attract one industry and hopes for more. It is uncertain whether it was the intermodal facility or other economic drivers that are beginning to jell.

Drivers for Original Development:

- Meet a specific challenge of losing port shipping line business
- Move primary trucking leg closer to the population center served
- Provide a reasonable incentive (possible subsidy) that could be recovered with other revenues.
- Take advantage of the marketing/merchandising value of creating one of the nation's first "inland ports."
- Provide a potential for industrial and commercial growth at and around the inland site.

Objectives Met:

- All except industrial and commercial growth. This apparently will be driven more by the surrounding area economic development potential.

Port of Shelby, Montana

Shelby, Montana, is at a remote location adjacent to the BNSF mainline. Top management at the public Port of Shelby would like to develop the site as an "intermodal center" with diversified cargoes. Currently, the facility is exclusively a Canadian grain transfer point for the BNSF. Its facilities consist of adequate sidings for loading grain using portable equipment owned by the BNSF and operated by a contractor. Its drivers are the BNSF's competitive rates for moving grain east-bound to Canadian and U.S. locations from Calgary and Edmonton. Although these Canadian areas are 240 and 420 miles, respectfully, from Shelby, apparently the Canadian National cannot beat the truck-rail pricing offered by the BNSF. One key factor to making the truck leg competitive was the need to accommodate the overweight trucks that are allowed in that part of Canada. Special legislation allowing overweight trucks from the border to Shelby was passed to meet that critical requirement.

Location and Niche-Driven. The Port is the product of a lengthy 1987 strike by the Canadian National which left grain farmers of the Calgary and Edmonton areas unable to move their crops to eastern Canada and U.S. They turned to the BNSF, which in turn leaped on the opportunity and sought out the closest point on its mainline tied by major highway to the grain sources. Shelby, Montana, and the City embraced the idea as an economic development potential. The Port was formed to provide land, necessary infrastructure and governmental approvals for the BNSF operation. Even after the Canadian National strike, grain producers are still using this route of transportation as the most cost effective and efficient.

Growth Potential. The Port has attempted to develop other cargo opportunities to include regular liaison with the ports of Tacoma and Seattle to uncover any potential inland cargo handling that partnerships could provide. Relatively formal declarations of cooperation with

Shelby were entered into by the two seaports in the early 1990s but nothing of substance has surfaced. Their attempts to attract industry have also been unsuccessful with one negative factor being lack of workforce and isolation from any population center. Shelby's population is approximately 3,000.

Drivers for Original Development:

- Capture a specific rail demand opportunity
- At the proper location on the BNSF mainline with closest major highway routes from Calgary and Edmonton
- Ability to provide a public-entity for providing local land, infrastructure, governmental approvals and necessary legislation.
- Provide an opportunity for the facility to attract additional cargo and industrial/commercial development.

Objectives Met:

- All, except opportunities for additional cargo and industrial/commercial development

Bethlehem Commerce Center

Bethlehem Steel Corporation has recently completed the first phase of this intermodal and distribution center in Bethlehem, Pennsylvania. It consists of a 200-acre intermodal site set aside from 1,500 acres being developed for an industrial and commercial center (nothing to do with their steel production). The land is a Brownfields site, where two former Bethlehem Steel plants were shut down. An initial 62-acre intermodal facility was opened with three intermodal operations tracks totaling 7,000 feet and 900 trailer slots. Ultimately, there will be six tracks totaling 20,000 feet, and 3,000 trailer slots. The site is served by the Norfolk Southern for rail-truck and truck-rail intermodal operations moving primarily trailers-on-flat-car but some containers into and out of the Bethlehem area, north and south. Today all the traffic is domestic cargo. Early startup experience in 1999 included monthly lifts in the 2000 to 4000 range.

Right Location and Situation. This facility was the product of location, available Brownfields, private objectives for reuse of shut-down plant sites, and a strategic change in freight markets for rail. Bethlehem is within 2 hours of 35 million people and ideally located for the current north-south intermodal network system objectives of the CSX and NS Railroads. Although the current traffic is domestic goods and its location will continue to drive its growth, it is anticipated that ultimately 50 percent of their lifts will be international containers. These containers are predicted to originate at the Port of New York/New Jersey, which also provides excellent rail connections to Bethlehem via New Jersey. Bethlehem Commerce Center and the Port are considering this connection as being similar to Southern California's Alameda Corridor. The Bethlehem Commerce Center will mirror the role of the downtown Los Angeles rail centers that move unit trains outside of the region. To date, this has been a privately funded enterprise but because of the strategic connection to the Port of New York/New Jersey, they are now seeking TEA-21 funding for intermodal growth.

Drivers for Original Development:

- Availability of shut-down Brownfields plant sites
- Considered ideal location for meeting demand of a large population center of consumers and producers
- Rail and highway connections highly favorable to meet CSX and NS north-south intermodal network strategies; early commitments by at least one railroad
- Population center market place and demands for distribution and industrial/commercial development were found to be favorable
- Potential for inland international container intermodal center as an alternative to direct rail from the Port (see “agile port” below).

Objectives Met:

- Too early to establish complete success, but promising. Otherwise, all except international container intermodal center

Neomodal Freight Terminal

Stark County, Ohio, is the location of this modern, well-equipped and efficient rail-truck intermodal facility. It is a 28-acre paved facility with a gravel overflow area allowing intermodal operations expansion and/or container storage on an additional 26 acres. The facility is owned and operated by the Stark Development Board, Inc., a private non-profit organization that was created by Stark County for economic development implementation. It is designed to serve trailer or container transfers to/from rail for consumers and producers within a 120-mile radius of this north-central region of Ohio. Stark County surrounds the City of Canton (one of four metropolitan areas of northeastern Ohio). When combined, this area is ranked seventh in the U.S. for retail sales and 30 percent of personal income. Rail service consists of the Wheeling and Lake Erie Railroad (WLE), a Class 2, which provides a tie with both CSX and NS.

Use Did Not Materialize. Since its startup in 1995, the facility has not attracted the business anticipated during development, reaching a peak number of only 500 lifts in a recent month. This equates to an annualized rate of 6,000 as compared to its design capacity of 150,000 lifts per year. The facility has maintained service under difficult financial pressures and had been optimistic about growth in usage until its primary rail user, CSX, announced recently it would depart. CSX will begin intermodal operations at a former Conrail intermodal facility in Cleveland (75 miles north) which it obtained in the buyout. Lifts will continue to decline until a new rail service is attracted. Site managers are currently in discussion with Canadian National.

Local Business Retention/State Intermodal Needs. Development of this facility has an interesting history that appears to show how a promising concept can be derailed by an inadvertent lack of understanding of the marketplace and the economic drivers. The interview could not provide a complete profile and case study of this development but did

provide enough information to describe applicable factors and drivers. The site is a product of a need to accommodate growth of a major employer (or to lose the employer), and a perception by State of Ohio officials that an intermodal facility was needed and would be used at this location. The employer's expansion required that the mainline of the WLE be moved at a cost of \$2.5 million. Local official's pleas to the state for assistance resulted in a scheme that tied this relocation to siting of an intermodal facility at the new location. Apparently, the state had been pursuing such a siting. Following a 4-month feasibility evaluation it was decided to proceed with the project.

Fast-Track Funding and Development. Most of the funding came from the ISTEA Congestion Mitigation and Air Quality Program and from a limited resource loan from local entities for accelerated design and construction. Time elapsed from start of the feasibility evaluation to completion of construction was one year. The mainline relocation was included in the project, which totaled \$12 million on completion. The non-profit corporation that owns and operates the facility must pay back the local entity loans from operating profits but apparently has no other debt service burdens to affect its financial status. This development was considered a model for efficient and timely project development and federal-local cooperation in implementing an ISTEA project. Developers received an award for its successful completion.

Question of Class 1 Railroad Needs and Incentive. Threatening the viability of this project are the drivers that create the demand for its use. There were apparently no attempts to gain Class 1 railroad concurrence in the siting nor any assurances of the railroad's need for the facility. The site was not on either Class 1 railroad's intermodal network and the WLE merely acted as a conduit to those nodes. Trucking is highly competitive with the WLE conduit and many moves that were anticipated to be from the facility instead moved by truck to CSX and NS intermodal nodes. After start-up, it became clear that the Class 1 railroads' use of the site had to include a directed pricing for site services to compete with trucking. Those prices for services were not as anticipated nor fully compensatory for the corporation and for the future threaten financial viability of the site.

An Uphill Challenge. With the current situation of NS only sporadically using the facility and CSX stopping its use, site viability will continue to diminish. However, a new player has emerged in the Canadian National with its recent partnerships that gives it full north-south routes from Canada to the Gulf Coast. This may be a solution for reliable business volumes for now but the development steps for this facility may have forever burdened it as an intermodal facility looking for a user.

Drivers for Original Development:

- Means to solve a local business/employer expansion
- Opportunity to attract a state-siting of an intermodal facility
- Funding was available federally and locally
- Location appeared to be positive for supporting population centers
- Projected use appeared to assure such an enterprise to be financially successful

Objectives Met:

- Mainline was moved and employer expansion took place
- Facility was funded and built
- Use has not materialized and may never be fully utilized
- Facility could become a financial burden to local entities

Agile Port

This is not an existing facility but instead a facility-concept being considered by the Federal Maritime Administration. It was originally conceived as a means to accommodate the anticipated dramatic growth of container imports anticipated through the Ports of Long Beach and Los Angeles over the next 20 years, in the range of two to three times current volumes. Those volumes are potentially to arrive at these two largest port complexes in the U.S. in new mega-ships that carry up to 10,000, 20-foot container equivalents (2½ times larger than today's average size) with a requirement to discharge each within 24 to 36 hours. Planners have undertaken the challenge to develop the means to efficiently and cost-effectively keep the ports from becoming overwhelmed and assure the smooth intermodal transfer of containers to truck and rail.

Alameda Corridor. Perhaps 50 percent of this large mass of containers will be destined for intermodal movement by rail to the midwest, east coast, and southern tier of states similar to today's intermodal "mini-bridge" system. The two ports have already led the region to develop the "Alameda Corridor," a dedicated, no-grade-crossing rail corridor to move intermodal trains smoothly from the sea terminals to railroad staging and departure facilities further north in the Los Angeles basin. A second segment of the corridor is now being considered for movement of trains smoothly to San Bernardino for a final "route out of town." But will the current system and planning accommodate the predicted growth?

L.A./Long Beach Concept. Initially, consultants proffered a concept specifically for the two ports rather than the current studies that attempt to address the issue universally. That initial concept expanded upon the Alameda Corridor plan for creating a rail corridor away from the waterfront to eliminate surface traffic impacts throughout the L.A. Basin. For the future, if the corridor could be extended to beyond the population center of the Basin, to a location where large areas of development space were available and reasonable in price, the mass of intermodal rail containers could be cleared from the limited space on terminals via this "rail-pipeline." It would be a mass movement directly from ship to rail without weight, size and destination sorting and staging, load planning, train building or dispatching, leaving all of that for the inland site.

Full Clearance of Containers Inland. Clearing the terminal of intermodal containers was perceived to be the critical challenge. Regional container movements by truck were to continue from the terminals. Later, the concept added a consideration for moving all containers off the terminal via the corridor rail system and transferring containers to truck at the inland site. Essentially all highway movements in and out of the seaport terminal areas would be eliminated and the mass rail would move via the dedicated corridor. Trucking

needing to enter the population and manufacturing center of the L.A. Basin would be from the inland site.

Planning. The concept received relatively little attention or acceptance by the Ports of Los Angeles and Long Beach. As the concept was more widely touted throughout the port industry, there was no consensus as to its feasibility at L.A./L.B. and less acceptance for other port areas. But the Federal Maritime Administration was interested enough to fund a series of studies which have attempted to address the full chain of handling the mass of containers from the mega-ships to port and transportation systems abilities to move them inland. The most recent study has named the concept “Agile Port” and is being touted as applicable to any major port aspiring to being one of the relatively few hub container ports of the future.

Inland Development Opportunities. It is this “Agile Port “ concept that has caught the eye of several inland locations that see the concept as an ideal opportunity. Clearing of congestion and mass movement of containers from the seaports has been considered a legitimate basis for future development as an inland “intermodal center.” But this perceived opportunity must be approached with caution. The port, rail, and trucking industries have not yet embraced it as the proper solution for the largest ports like Los Angeles and Long Beach let alone a generic port scenario. In fact, they have not yet agreed on the operating challenges. On the east coast, there is speculation that the largest ships may operate using a hub and spoke system, with smaller ships calling at smaller ports. The relative location of an inland site from the seaport might not be as far inland as those perceived for Los Angeles/Long Beach. And the informal feelings of the Ports of Tacoma and Seattle planners is that if a rail corridor could be developed allowing such a “rail-pipeline,” the terminals could be cleared without an inland site double-handling (more than 70 percent of import containers move out of the region by rail).

Drivers for Original Development:

- Provide an inland site for accomplishing all terminal operations related to the intermodal rail and trucking movements that would prove infeasible on waterside terminal space
- Perceived need to physically meet a mass movement demand of the future
- Demand will create a marketplace for the services

Objectives Met:

- Conceptual planning only at this time; being addressed as more than a vision

IDENTIFYING THE DRIVERS OF DEVELOPMENT

The focused survey, although not exhaustive, produced an adequate cross-section of facilities and developed transportation and commercial centers to identify elements that drive development. The survey provided examples of the following drivers:

- Distribution demand
- Location
- Modal transfer requirements
- Intermodal transfer requirements
- Competition pressures
- Route geography
- Population proximity
- Site and facilities availability
- Modal efficiencies
- Modal services requirements
- Public funding availability
- Niche business
- Modal cost reductions
- Known or predicted demand for transportation, industrial or commercial facilities

The surveyed entities were selected because of their transportation orientation, therefore developments were driven by actual or perceived excellence of transportation networks available. Common to all was the proximity to national or regional population centers. Almost all developments included an intermodal transportation operation. Those that have been the most successful ventures have experienced a clear demand for intermodal cargo transfers or other transportation services. Only one appears to have attracted additional growth of industrial and commercial businesses as a “spin-off” of core intermodal and distribution operations. Even for that development and for two others located near major population centers, it can not be determined from the survey information whether growth is the result of the intermodal operation or demands of the population center. For those instances the pattern may not be clear and related to the proverbial, “which comes first, the chicken or the egg?” And finally, most developments had multiple drivers and combinations, substantial variations in size and purpose and unique circumstances for each endeavor.

Common Drivers and Definitions. Relative differences between actual situations at each surveyed development makes it difficult to establish generic feasibility criteria, quantitatively or qualitatively. And it is believed that except for broad “fatal flaw” issues, the same would be true for sites being evaluated. i.e., there are very few if no set combinations of drivers that will indicate success. An additional problem that will be addressed in following sections of this memorandum is that a “one fits all” criteria is unworkable and a set of three criteria will be needed along with new site-use definitions.

Primary Screening Factors. A starting point for developing criteria is to establish a common set of factors from common patterns seen as drivers for development. These primary factors become a basis for broad screening of a site as a first stage in feasibility analyses:

- Served by at least two Class 1 Railroads and major interstate highway routes
- Located within or in proximity to a major population center
- Located on one or more Class 1 Railroad's Intermodal Network Routes
- Located for direct access to one or more Class 1 Railroad's intermodal networks or have the ability to prompt direct access; see "Railroad Criteria for Direct and Indirect Access Intermodal Facilities", attached to this memorandum
- Adequate site availability in proximity of both Class 1 Railroad Mainlines
- Identified a clear and reasonable basis for assuming a need for such a facility
- Or clearly established demand for the facility and its services; the "demand factor."

The primary screening factors will be applied somewhat differently in the three sets of feasibility criteria, oriented as generic "fatal flaws." A key factor that is not only a mandatory element of feasibility but also acts as a screening safety-net for marginal sites is "demand." A known or accurately predicted demand for the facility and its services, of course, becomes a bottom-line driver. But other factors may be just as critical, as demonstrated by the actual situations of surveyed developments. Other factors may also be important in surfacing drivers that might create new or increased demand.

Other Survey Factors. From the several examples provided by the surveyed sites, a list of additional factors was extrapolated from the pattern of drivers:

- Local or regional distribution needs
- Specific favorable site location
- Special transfer requirements
- Special intermodal transfer requirements
- Need for relieving specific competition pressures
- Route geography opportunity
- Relative population proximity
- Site and facilities availability
- Modal efficiency improvement needs
- Modal services requirements
- Opportunities for public funding
- Niche business opportunity related to site
- Modal cost-reduction needs
- Known or predicted demand for transportation, industrial or commercial facilities

General Feasibility Criteria. Technical Memorandum No. 1, Feasibility Criteria, approved by the Study Oversight Panel in July 1999 concluded a series of general criteria for both industrial development and the business of transportation. Those criteria are fully applicable to these types of facilities and will be adapted for and integrated into the final "inland port"- "intermodal center" criteria.

FURTHER DEFINING “INLAND PORT” AND “INTERMODAL CENTER”

There are accepted uses of these terms as defining certain facilities throughout the country but there is not a consistent practice, nor are there formal definitions. “Inland” is clearly understood as being away from the sea; “port” can be broadly defined as a place for handling cargo; “intermodal” is the changing of mode of transportation; and “center” denotes a large complex. An “inland port” description certainly is legitimately applied to a facility that handles cargo at an inland location including river ports. An “intermodal center” description certainly is legitimately applied to a facility that conducts the operations for changing from one mode of transportation to another to include park and ride lots. But these terms or similar terms that are so widely used to describe the many varieties of facilities of that nature need to be further defined to appropriately apply feasibility criteria. For example, if Alliance Park is defined as an inland port and intermodal center, criteria for its feasibility would not also be applicable to the Neomodal Freight Terminal in Ohio or to the Tri-Cities area.

Three new descriptive terms have been developed for this study that better allow the appropriate recognition of function, size, and application of criteria. Following are the three descriptive terms, along with a brief definition:

- **Freight Transportation Services Center.** A primary central service facility on the modal route intended to provide necessary enroute services and other enhancements that improve the onward movement of cargoes on the same mode.
- **Freight Intermodal Services Center.** A principal transportation facility specifically located and designed to meet a need to change routes on the same mode or change modes of transportation; distribution is likely but not mandatory.
- **Freight Intermodal Services and Commercial Center.** A major complex located and designed to accommodate large volumes of intermodal and distribution services generally associated with major population centers; potentially a magnet for substantial industrial and commercial development attracted by the combination of consumers, producers, and transportation efficiencies.

Examples of Use. A candidate site might be feasible for one or for combinations of the described uses. The definitions of “intermodal” and “commercial center” already assume an intermodal component. Applying these descriptions for the surveyed developments would have given them the following names:

- Greater Columbus Inland Port – All three terms apply, although this is a development “bubble” instead of a facility
- Alliance Park – All three terms apply
- BNSF Hauser Fueling Facility – Freight Transportation Services Center; potentially also an Freight Intermodal Services Center
- Virginia Inland Port – Freight Intermodal Services Center
- Port of Shelby – Freight Intermodal Services Center
- Bethlehem Commerce Center – Freight Intermodal Services Center; potentially all three
- Neomodal Freight Terminal – Freight Intermodal Services Center
- Agile Port – Inland element would be an Freight Intermodal Services Center

CRITERIA FOR SCREENING AND GUIDING FEASIBILITY DETERMINATIONS

The following criteria were developed using the factors and definitions of the previous paragraphs.

Freight Transportation Services Center

A candidate site will be considered preliminarily feasible if the it is/has:

- Located immediately adjacent to one or more Class 1 Railroad's Intermodal Network Routes
- Adequate site available adjacent to one or both Class 1 Railroad mainlines
- Identified a clear and reasonable basis for assuming a need for such a facility to:
 - Reduce system costs
 - Improve system reliability
 - Reduce system inventory
 - Meet applicable industrial development criteria
- Otherwise, identified a clearly established demand for the facility and its facilities

A candidate site will be considered feasible if during evaluation it exhibits a balanced combination of drivers for development in the following areas:

- Found to be preliminarily feasible
- Favorable site
- Route geography opportunity
- Site and facilities availability
- Opportunities for public funding
- and,
- Has a high degree of certainty in lowering systems costs, improving systems reliability, reducing system inventory or otherwise meeting a clearly defined demand for the facility.
- Will fully meet appropriate industrial development criteria with a high degree of certainty.
- Required public improvements/benefits will meet the established public benefit criteria (see Technical Memorandum No. 1).

Freight Intermodal Services Center

A candidate site will be considered preliminarily feasible if it is/has:

- Served by one or more Class 1 Railroads and major interstate highway routes
- Located within or in proximity to a population center or at a critical point of route geography
- Served by one or more Class 1 Railroad's intermodal network routes
- Located for direct access to one or more Class 1 Railroad's Intermodal Networks or have the ability to prompt direct access; see "Railroad Criteria for Direct and Indirect Access Intermodal Facilities", Attachment A to this memorandum

- Adequate site availability in proximity of both Class 1 Railroad Mainlines
- Identified a clear and reasonable basis for assuming a specific need for such a facility to include:
 - Improves system reliability
 - Reduces system inventory
 - Meets applicable industrial development criteria
- Reduces system costs
- Otherwise identified a clearly established demand for the facility and its facilities

A candidate site will be considered feasible if during evaluation it exhibits a balanced combination of drivers for development in the following areas:

- Found to be preliminarily feasible
- Favorable site
- Modal transfer requirements
- Intermodal transfer requirements
- Competition objectives
- Route geography opportunity
- Site and facilities availability
- Population proximity
- Modal efficiencies
- Opportunities for public funding
- Niche business opportunities
- Modal cost reductions
- Known or predicted demand for transportation and distribution facilities
and,
- Has a high degree of certainty in lowering systems costs, improving systems reliability, reducing system inventory or otherwise meeting a clearly defined demand for the facility.
- Will fully meet appropriate industrial development criteria with a high degree of certainty.
- Required public improvements/benefits will meet the established public benefit criteria (see Technical Memorandum No. 1).

Freight Intermodal Services and Commercial Center

A candidate site will be considered preliminarily feasible if it is/has:

- Served by at least two Class 1 Railroads and major interstate highway routes
- Located within or in proximity to a major population center
- Served by one or more Class 1 Railroad's intermodal network routes
- Located for direct access to one or more Class 1 Railroad's intermodal networks or have the ability to prompt direct access; see "Railroad Criteria for Direct and Indirect Access Intermodal Facilities", Attachment A to this memorandum
- Adequate site available in proximity of both Class 1 Railroad mainlines

- Identified a clear and reasonable basis for assuming a need for such a facility
 - Reduces system costs
 - Improves system reliability
 - Reduces system inventory
 - Meets applicable industrial development criteria
- Otherwise clearly established demand for the facility and its services

A candidate site will be considered feasible if during evaluation it exhibits a balanced combination of drivers for development in the following areas:

- Found to be preliminarily feasible
- Favorable site
- Modal transfer requirements
- Intermodal transfer requirements
- Competition objectives
- Route geography opportunity
- Major population proximity
- Site and facilities availability
- Modal efficiencies
- Opportunities for public funding
- Niche business opportunities
- Modal cost reductions
- Known or predicted demand for transportation, industrial, or commercial facilities and,
- Has a high degree of certainty in lowering systems costs, improving systems reliability, reducing system inventory or otherwise meeting a clearly defined demand for the facility.
- Required land, labor, raw materials, markets, business environment, tax and government incentives, water and other utilities, quality of life and returns on site investments are acceptable and will attract the industries and commercial operations with a high degree of certainty.
- Required public improvements/benefits will meet the established public benefit criteria (see Technical Memorandum No. 1).

Attachment A

Railroad Criteria For Direct and Indirect Access Intermodal Facilities

Basic Criteria

The three criteria below must be satisfied in order to make an Intermodal Facility viable:

- Balance or supply of equipment
- Direct or Indirect Rail Access to the Intermodal Network
- Sufficient volume within a 50-mile radius

Equipment supply or balancing and volume criteria apply equally to both Direct Access and Indirect Access Facilities.

Balance or Supply of Equipment

A ready supply of intermodal equipment is required to avoid costly re-positioning. Competitive transportation rates will not cover the cost of repositioning equipment. Intermodal equipment includes rail cars, chassis, containers, and trailers. The supply of equipment can either be from a balance of inbound and outbound loads or from a nearby intermodal facility which has the opposite imbalance. This pair of facilities must be within a 200-mile range with existing connecting train service with available capacity.

Access to the Intermodal Network (Direct/Indirect)

- **Direct Access**
A location with direct access to the Intermodal Network has intermodal trains regularly using that facility as a “node” (where cars are allowed to be added or removed from network trains as well as other supporting rail operations) on the network. Examples of this are Seattle and Tacoma, WA, Portland, OR, Spokane, WA, Minneapolis/St. Paul, MN, and Chicago, IL.
- **Indirect Access**
A location that has only connecting rail access to the Intermodal Network via another type of rail service other than intermodal, such as Manifest or Automotive trains to the closest “node” on the network. Examples of this are Pasco, WA, Great Falls, MT, Wenatchee, WA, and Minot, ND.

Locations with indirect access to the intermodal network will utilize available capacity on existing manifest or automotive train service to get to a location on the intermodal network. An example of this would be the Tri-Cities in Washington. This situation would require intermodal traffic be loaded on intermodal railcars at the Tri-Cities, ride a manifest train to Spokane, WA, and then be added to an outbound intermodal train at either the intermodal facility or switch yard in Spokane. Routine service by these means is not normally suited for time sensitive shipments.

Volume Within 50-mile Radius

For a facility with Direct or Indirect Access to the Intermodal Network a volume of 20 to 50 loads (trailers or containers) per day of new business must exist within a 50-mile radius (local trucking dray) of the facility in order to cover the fixed and variable cost for the railroad and intermodal facility. Business outside a 50-mile radius will not be considered a local dray for what is most likely a one-way move, which is less attractive to shippers. Higher population areas such as Portland and Seattle can reach out as far as 150 miles because of the logistics opportunities available to make round trip dray moves.

Potential For Becoming A Direct Access Intermodal Facility

The base criteria above applies to both Direct and Indirect Access Facilities but should not be confused as being a criteria for establishing a “node” on the Intermodal Network. The volumes and associated criteria that drive the establishment of a “node” are not approached as a rule-of-thumb. The major business and operating decision for establishing a “node” will be made by and for the railroad. With only six nodes on the BNSF system between the Pacific Northwest and Chicago today, the addition of new nodes would obviously be a major action. Meeting the base criteria of equipment supply or balancing, physical location adjacent to an intermodal mainline route and dramatic growth in volumes would only be a starting point for becoming a Direct Access Facility.

Summary

An intermodal facility must satisfy the above criteria in order to be considered by the railroads to be viable and worth providing rail service. Often the customer base can not understand why rail cannot better serve their needs. Ultimately, it is necessary to understand these criteria and how it affects their interests in obtaining a high level of service reliability, necessary speed of transportation, and competitive price.

When comparing transportation carriers shippers normally prioritize their requirements as follows: 1) Service reliability, 2) Speed; and 3) Price. However, when choosing a mode of transportation (rail or truck) they are prioritized: 1) Price, 2) Service reliability; and 3) Speed. Speed is measured in comparison to truck competitive service such as 500 miles a day for non-team drivers. Priority type freight will require competing with the speed of team driver truck service. Accordingly, locations like the Tri-Cities end up trucking many of their products.

Appendix III Detailed Feasibility Summaries: Industrial Development

Appendix IV Detailed Feasibility Summaries: Business of Transportation